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THE
ASIATIC SOCIETY OF BOMBAY
Town Hall, Bombay.

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Vol. XIX. Part I.

THE

TRANSACTIONS

OF THE

BOMBAY GEOGRAPHICAL SOCIETY.

From January 1868 *to December* 1869.

(EDITED BY THE SECRETARY.)

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BOMBAY:
PRINTED AT THE "TIMES OF INDIA" OFFICE.

1870.

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PROCEEDINGS

OF THE

BOMBAY GEOGRAPHICAL SOCIETY.

SESSION 1867-68.

THIRD MEETING.—*January 16th*, 1868.

The ordinary Monthly Meeting of the Bombay Geographical Society was held on Thursday the 16th January 1868, at 5 o'clock P.M.

Present.—Commander G. T. Robinson, *Vice-President*, in the Chair; the Hon'ble George Foggo, *Vice-President;* Sir Jamsetji Jijibhai, Bart., F.R.G.S.; J. Burgess, Esq., F.R.G.S., M.R.A.S.; Khurshedji Fardunji Parak, Esq.; Homji Khurshedji Dadi, Esq.; J. Firth, Esq., *Members;* and Lieut. Henry Morland, F.R.A.S., F.R.G.S., *Honorary Secretary.*

The Minutes of the last Meeting were read and confirmed.

Elections.—J. Macdonald, Esq., and F. W. Pickering, Esq., were, after Ballot, declared Members of the Society.

Several donations to the Library were announced, for which the best thanks of the Society were voted to the donors.

Among the several letters read were the following :—

1. From Captain W. A. Baker, R. E., Acting Under Secretary to Government, Public Works Department, conveying the resolution of Government directing the Chief Engineer, Presidency Division, to supply the maps called for by the Society.

2. From W. E. Frere, Esq., ex-President of the Society, acknowledging £100 remitted to him in June last for commissioning an artist with the execution of his Portrait, and expressing his readiness to render every assistance in his power to carry out the Society's wishes with regard to Mr. Premchand Raichand's grant.

3. From H. E. Jacomb, Esq., C. S., Under Secretary to Government, General Department, forwarding copy of an extract from the proceedings of Government, on the subject of the Geological Action on the South Coast of Káthiáwád, and requesting to be informed if data were available with the Society for the formation of tables for the Ran similar to those for Bombay given in para. 11 of Colonel Walker's letter, and also what period of the year they would pronounce unsuited for the prosecution of tidal observations on account of the prevalence of continuous strong winds from one quarter.

Captain Morland then reported for the information of the Society that on the 24th of December last, he addressed a letter to the Chief Secretary to Government requesting him to move His Excellency the Right Hon'ble the Governor in Council to assign to the Society the Room below the Library of the Asiatic Society, vacated by Colonel Worgan, Inspector General of Ordnance and Magazines, on account of the removal of his office to Poona. He added that the Room the Society now occupied was sufficient for their requirements; but still from its situation, it was not a desirable Room for a public Society—he trusted that Government would be pleased to respond favourably to the Society's appeal, as the Room he had applied for was in every respect more eligible.

The Secretary then submitted to the Society the following plan of the proposed Anglo-Vernacular Index of Indian Geographical names prepared by Mr. Burgess, and approved by the Sub-Committee appointed for the purpose:—

Plan of a proposed Index or List of the Geographical names in India, in Vernacular and English Spellings, with Memoranda Geographical, Etymological, Antiquarian, and Statistical.

The Committee of the Geographical Society of Bombay appointed to prepare a Vernacular and English Index or List of the principal places, rivers, mountains, &c. in India, have agreed on the following statement of the outline of a general plan to guide them in the formation of the proposed Index, and to enumerate the particulars it might properly include.

2. The object of the list is primarily *geographical* and *etymological*, but the Committee hope information may be placed at their disposal to enable them to make it also historical and statistical. They do not contemplate the compilation of a gazetteer, but such an index will

form an essential preliminary and basis for a full gazetteer of India,—a work of which the want is becoming greatly felt.

3. The Committee therefore consider that a full Index of the kind ought to embrace the following:—

1. Names of all towns, villages of any size or note, railway stations, &c., with the taluka and district or state in which each is situated and its longitude and latitude.

To this it seems desirable to add, where known, the population; name of the river or stream on which each is situated; altitude above the sea-level; the dates and names of founders; the etymology of the name; the Sanskrit or ancient name; and notes of connected events, peculiar products or manufactures; places of note, temples, commemorative pillars, &c. in their vicinity, with references to fuller descriptions already published.

2. Names of the talukas or divisions in each district, with the area, chief town, and population.
3. Shrines and places of pilgrimage, with notes of the objects of adoration or pilgrimage, dates of fairs, &c., and precise locality.
4. Rivers, their rise, course, and confluence or debouchure; lakes, with their size or area and products; hot springs, with their temperature.
5. Mountain ranges with average heights; peaks with their greatest altitude; hill forts, with notes of events connected with them and their present condition.
6. Valleys, platcaux, &c. having particular designations, with notes on their peculiarities.
7. Tribes and peculiar sects, with notes of their habitats, castes, race, peculiar deities, occupations, &c.

The notes alluded to under the above heads are not intended to be lengthy, and in few cases need extend to half a dozen lines, but generally may be restricted to one or two: whilst all detailed information collected might be preserved by the Geographical Society for reference.

4. If this plan can be well filled up, the proposed list will include as many as possible, if not all, of the names on the maps of Rennell, Arrowsmith, Allen, Walker, and Keith Johnston, and in the road-books, with many others in addition. It would thus be of considerable extent, and require a large amount of patient labour, besides the col-

lection of much information that has never yet been brought together from the many districts of so vast a country.

5. The forms in which the Committee propose to compile the names are twofold. 1*st*, Every name must be given in the characters of the vernacular or vernaculars of the district in which it occurs, and in the language to which the name belongs. Thus purely Muhammadan names must be given in Urdu, and in the characters of the Hindu dialect of the place; and Hindu names in the form or forms used by educated Hindus of the vicinity, whether Hindi, Bengali, Panjabi, Kashmiri, Sindhi, Kachhi, Gujarati, Marathi, Uriya, Telugu, Tamil, Malayalim, Singalese, or Burmese; but for convenience in printing, it may be found best to use the Devnagari alphabet for all the Sanskritic dialects at least. To guide in deciphering the various characters, and prevent mistakes in printing, each name should be followed by its transliteration into Roman characters according to a uniform alphabet. This will be of special value in all manuscript lists sent to the Committee. And, as the alphabet of Sir Wm. Jones as now written by the Royal Asiatic and other Societies and by most Orientalists is familiar to many, the Committee would employ it for this purpose, and prepare alphabets of the different Indian languages for the use of those who may assist them. The Committee would gladly have availed themselves of the spellings in published vernacular maps and books, but have found, in the best of these, instances of transliteration from common English spellings, and therefore cannot depend upon them as trustworthy, even for those districts for which they are able to obtain such aid; and they recommend that the vernacular orthography of the names be collected afresh, together with other information. 2*nd*, Besides the vernacular, the English spellings in common use and on the Trigonometrical Survey maps will be given; and both the English and Vernacular forms will be so arranged that, either being known, the name will be at once found in its alphabetical place in the Index.

6. To these the Committee hope to be able to add any peculiar forms of Indian names found in the best-known historical and descriptive works on India, such as the writings of Orme, Dow, Elphinstone, Grant Duff, Mill, Wilson, Thornton, Montgomery Martin, Rennell, Hamilton, &c., also the Greek and Sanskrit ancient names so far as they have been identified by Lessen, De Saint-Martin, Cunningham, &c.

7. As to the modes of spelling, it is well known that the Indian Universities and Oriental Scholars are in favour of writing names as

transliterated from the vernacular orthography, whilst popular feeling is probably averse to any change in the prevalent variety. This List or Index interferes with neither further than to bring them together. By giving the names in Native characters their etymologies as well as pronunciation will be much better preserved than by any mode of transliteration alone on any system whatever; and no name will be entered whose vernacular spelling has not been obtained. The transliterated spellings will serve as a check on typographical errors; and the ordinary spellings will make the list generally useful to all Europeans, especially to such as are not thoroughly acquainted with the geography of the country, and will adapt it as an index to all maps of India.

8. Considering the nature and extent of the work, the Committee,—whilst they would gladly prepare forms of the returns required with instructions respecting the particulars to be entered, &c., and systematic alphabets for transliterating the various languages so as to prevent mistakes and confusion, and whilst ready to do their best in compiling and editing the information placed at their disposal—feel that they must be mainly dependent upon fresh information from each locality. And, believing as they do, that with adequate assistance such a List or Index would be of permanent value to all connected with this country, they recommend the Geographical Society to bring the matter before the Government of Bombay, with the request that the Committee and Society be afforded that assistance in procuring the desiderated information, which Government alone can afford by obtaining the services of its officers in the Revenue and Educational departments and others, in collecting the vernacular names and other required particulars from the various districts of the Presidency; and that the Government of Bombay graciously use its influence in obtaining for the Society similar assistance from the other Governments of India.

JAMES BURGESS.
BHAU DAJI.
VISHVANATH NARAYAN MANDLIK.
J. P. HUGHLINGS.
HENRY MORLAND.
R. S. SINCLAIR.
J. SCORGIE.

The above plan having been approved of by the Society, it was unanimously resolved to recommend it to the favourable consideration of Government, with a request that the Society might be afforded the assistance it required in procuring the necessary information, and otherwise in forwarding the labours of the Committee to complete the Index for the Bombay Presidency ; and that Government be requested to commend it to the favourable notice of the Governments of other Presidencies.

There being no further business the meeting adjourned to next month.

SESSION 1867-68.

Fourth Meeting.—*23rd April*, 1868.

The ordinary Monthly Meeting of the Society was held on Thursday 23rd April 1868, at 5 P.M.

Present.—Commander G. T. Robinson, *Vice-President*, in the chair; J. Burgess, Esq., F.R.G.S., M.R.A.S.; Manekji Khurshedji, Esq., F.R.S.N.A., F.R.G.S. ; K. R. Kama, Esq. ; J. E. C. Pryce, Esq., F.R.G.S.; Lieut W. L. Searle, F.R.A.S. ; J. Mackinlay, Esq., F.R. G.S., M.R.A.S.; Atmaram Pandurang, Esq., G.G.M.C. ; D. E. Gostling, Esq., *Members ;* and Lieut. Henry Morland, F.R.A.S., F.R.G.S., *Honorary Secretary.*

The Minutes of the last Meeting were read and confirmed.

Election.—James Sewell White, Esq., Barrister-at-Law, having requested admittance, was elected a Member under Rule XXII. of the Society.

Several donations to the Library were announced, for which the best thanks of the Society were voted to the donors. Among letters read were the following:—

1. From Major General C. W. Tremenheere, Chief Engineer, Presidency, forwarding 25 Maps of the Collectorates of the Bombay Presidency in conformity with the Government Resolution No. 13E-54 of 9th January last.

2. From the Secretary to Government, General Department, forwarding the Government Resolution No. 114 of the 16th January last on the subject of the Geological action on the south coast of Káthiáwád and the Ran of Kachh.

3. From the Acting Chief Secretary to Government, General Department, forwarding printed copy of Mr. Sowerby's original and supplementary Memoranda on the Geological action on the south coast of Káthiáwád, &c.

The following correspondence received from the Bombay Government on the subject of the proposed Scheme for the Compilation of an Anglo-Vernacular Index of Indian Geographical names was also submitted :—

No. 655.—General Department.

Bombay Castle, 8th April 1868.

Letter from the Honorary Secretary to the Bombay Geographical Society No. 6, dated 10th February 1868—Forwarding 30 copies of a plan for the preparation of a Vernacular and English List or Index of Indian Geographical names, submitted by the Committee appointed to prepare it, and approved of by the Society; and requesting that the Society may be afforded the assistance it requires in procuring the necessary information, and otherwise in forwarding the labours of the Committee to complete the Index for the Bombay Presidency; and that the plan of the Society may be commended to the notice of the other Governments of India.

Memorandum from the Director of Public Instruction No. 3342, dated 20th Feb. 1868.
Memorandum from the Acting Survey and Settlement Commissioner S. D. No. 168, dated 20th February 1868.
Memorandum from the Officiating Revenue Commissioner S. D. No. 539, dated 24th February 1868.
Memorandum from the Revenue Commissioner N. D. No. 830, dated 3rd March 1868.
Memorandum from the Survey and Settlement Commissioner N. D. No. 241, dated 14th March 1868.

} Replying to Government memorandum No. 320, dated 15th February 1868, calling for opinion as to the most reliable agency for compiling accurate information of the nature required to serve as the basis of a Gazetteer.

RESOLUTION.—The Bombay Geographical Society should be informed that the compilation of a Gazetteer for the Bombay Presidency is already under the consideration of Government; and a copy of the letter despatched to the Government of India on the 29th January, with the Government of India's Resolution thereon of the 4th March, should be forwarded to the Society for their information.

2. On the appointment of the Committee by Government to carry out the undertaking, the proposed scheme of the Geographical Society will be submitted for its consideration.

3. Copies of the letter from the Honorary Secretary of the Society, with its accompaniment, should be forwarded to the other Governments of India for favorable consideration.

F. R. S. WYLLIE,
Officiating Secretary to Government.

To The HONORARY SECRETARY to the BOMBAY GEOGRAPHICAL SOCIETY, (with copies of the papers referred to in paragraph 1, together with copies of Government Resolutions Nos. 656 and 657, dated 8th April 1868),

The DIRECTOR of PUBLIC INSTRUCTION,
The REVENUE COMMISSIONER N. D.,
The REVENUE COMMISSIONER S. D.

} With copies of the letter from the Honorary Secretary to the Society, and accompaniment, and of the memoranda from two Survey and Settlement Commissioners.

No. 209 OF 1868.—GENERAL DEPARTMENT.

Bombay Castle, 29th January 1868.

From E. W. RAVENSCROFT, ESQ.,
Acting Chief Secretary to the Government of Bombay,

To SIR W. MUIR, K.C.S.I.,
Secretary to the Government of India, Foreign Department,
Calcutta.

SIR,—With reference to Mr. Under Secretary Wyllie's Circular letter No. 1758, dated 19th October last, requesting that steps may be taken for the compilation of a Gazetteer for this Presidency similar to that published in the Central Provinces, I am directed to submit, for the information of the Government of India, the following remarks by His Excellency the Governor in Council.

2. The work to be done for the Bombay Presidency will be of multifarious character. For instance, the article on the commerce of

Bombay will require special qualifications in the writer. Again a different sort of speciality would be required for writing accounts of the sacred cities of Nasik, Pálitáná, &c.; the caves of Ajanta, Elora, &c.; the histories of Sindh, Gujarat, Ahmadnagar, &c.; the Portuguese ruins of Basain, and their connection with the history of the Presidency; and accounts of the Parsís, Khojas, and other castes and tribes.

3. In short, what we should have before us would be an undertaking of much greater scope and difficulty than the composition of a Gazetteer for the Central Provinces. Much thought must be taken before the general plan can be laid down, and afterwards all sorts of questions as to arrangement and mode of treating particular parts are sure to arise.

4. The local Revenue Officers, I am to add, cannot, as a general rule, find time to devote to work of this description without neglecting their ordinary duties; but they could, no doubt, correct and amplify so as to make it of very great use, a compilation of information such as that in the Gazetteer which might be drawn up by a Special Officer from the published and unpublished records of Government.

5. His Excellency the Governor in Council, therefore, thinks that the general supervision and direction of the work should be placed in the hands of a Committee, consisting of the Revenue Commissioners and the Director of Public Instruction, with whom should be associated the Commissioner of Customs, and an Editor should be appointed (with a small copying establishment) to act under the directions of the Committee. The Editor should give his entire time to the work, and be expected to finish it in about a year. It should be his duty to collect and arrange all recorded information of all towns, places, &c., within each Collectorate, in alphabetical order, which might be printed on half margin, each part being sent to the local Officers for verification, additions and alterations, and when these were returned and corrected by the Editor, they might, with advantage, be laid before the Committee, who might also be of use to the Editor in fixing the arrangement and plan of the work, but it should be clearly understood that all the credit and responsibility of the Gazetteer should belong to the Editor.

6. The Officer appointed to serve as Editor would naturally be entitled to some remuneration for his onerous task, and in addition to a small establishment of copyists he would have to meet other

expenses which would arise, such as a fair remuneration for articles from qualified persons, the printing of the work, with small accompanying maps, &c., &c. On the whole, it is expected that a sum not exceeding Rupees 12,000 will have to be sanctioned for the total expenses of the Gazetteer, including payment to the Editor.

7. In submitting the above remarks, I am directed to observe that it is out of the question for the work to be done in a satisfactory manner, unless a suitable grant as that proposed for the purpose is made.

I have the honor to be, Sir,

Your most obedient Servant,

(Signed) E. W. RAVENSCROFT,

Acting Chief Secretary to Government.

No. 1283.

GOVERNMENT OF INDIA, FINANCIAL DEPARTMENT,

Fort William, The 4th March 1868.

Read an Endorsement of the Foreign Department No. 350, dated the 24th ultimo, on an application from the Government of Bombay for the grant of a sum not exceeding Rs 12,000 for the expenses of the compilation of a Gazetteer for that Presidency.

SANCTIONED.

Ordered, that a copy of the above be sent to the Foreign Department, and the Accountant General, Bombay.

(Signed) E. H. LUSHINGTON,

Secretary to the Government of India.

No. 469.

Copy forwarded to the Government of Bombay, with reference to their Acting Chief Secretary's letter No. 209, dated the 29th January last.

(Signed) J. T. WHEELER,

Assistant Secretary to the Government of India.

Fort William, Foreign Department, General, the 12th March 1868.

At the conclusion of the above correspondence, Captain Morland observed that Government appeared to have misapprehended the object contemplated in the Plan of the Index proposed by the Society,

and that he considered it desirable that they should be addressed again on the subject, pointing out the precise character of the proposed Index, and the nature of the co-operation called for.

Mr. Burgess said he greatly regretted the absence of Dr. Bhau Daji and Mr. Vishvanath Narayan Mandlik to whom the proposed Plan of the Index was considerably indebted for the form it had finally assumed, and who could have done much more justice to the views of the committee than he could hope to do. He remarked that he was at a loss to understand the precise meaning of the resolution of Government when taken in connection with the other correspondence which Government had thought it necessary to forward to the Society along with it. From the first part of the resolution it appeared to him as if Government thought the proposed Index would be unnecessary, for the Bombay Presidency at least, being superseded by the Government Gazetteer mentioned in the correspondence. This Gazetteer Government proposed to have compiled in twelve months on the plan of the Gazetteer of the Central Provinces. Now the Committee of this Society had expressly stated in their proposed scheme that it was not their purpose to compile a Gazetteer, or to enter into the statistics of the commerce of Bombay, or the history of Pálitáná, or a description of the temples of Elora. Everything beyond the mere name and position of each place it was intended to include in two or three lines, stating the population, name of the founder, date of any remarkable siege, &c. Then from the period allowed for compiling and the plan proposed, he could hardly think that the Government Gazetteer was likely to include more than from 500 to 700 names of places in the Presidency, whilst from a careful computation he found that a full index for the various maps mentioned in the plan of the Society's committee would include from 26,000 to 30,000 names: this was of course for all India with Ceylon and Burmah; but on a very moderate estimate Bombay and Sindh might be reckoned to contain a tenth of these, say 2,800 names, of which not more than one-fourth could be expected to appear in the Government Gazetteer; and if the latitude and longitude of each were given, probably in very few cases indeed would the name be given in the Vernacular, from which alone its *etymology* could be correctly inferred. In this way the Index was quite independent of the Gazetteer, and whenever a really *complete* Gazetteer could be undertaken—which it is almost impossible to attempt at present—such an

Index would be an almost indispensable preliminary. Moreover, he thought Government had probably overestimated the assistance the Society had asked. He had been informed that Government possessed a mass of returns called for by Mr. Erskine, that would, if placed at the disposal of the Society, yield a large amount of the information required. Then he believed the trouble to the higher Revenue Officers to complete the information would be very trifling, since the Mamlatdars were the best qualified persons to supply all such information, and the forms could be prepared in Marathi and Gujarati to be filled up. Their superiors would only have to forward the forms to them.

From the second part of the Government Resolution, he said, he thought he was confirmed in his supposition that the proposal of the Society had been partially at least confounded with the compiling of a Gazetteer. He thought, moreover, that taken altogether, the Resolution did not meet the request of the Society, and if the other Members agreed with him in this, he would suggest it for consideration whether Government should not be written to again, and attention called to the character of the information wanted, and the facilities with which Government could supply it, pointing out also the distinctive character of the proposed Index as compared with any Gazetteer that it is at all possible to compile in a limited time at present. He was much gratified to hear that the Government of Bombay had recommended the proposal of the Society to the other Governments.

At the conclusion of Mr. Burgess' remarks, a long discussion followed, in which several of the members present took a part. The chairman having dwelt at some length on the merits of the arguments brought forward, it was moved by Captain Morland, and seconded by Mr. Burgess, and unanimously carried,—

"That the attention of the Bombay Government be again invited to the distinctive character of the proposed Index as compared with the Gazetteer, the compilation of which is now under their consideration, and also to the nature of the co-operation solicited by the Society."

The best thanks of the Society having been voted to His Excellency the Right Honorable the Governor in Council for the most acceptable present of the maps, and to the other contributors to the Library, the Meeting adjourned to the next month.

SESSION 1867-68.

ANNUAL MEETING.—*May 28th*, 1868.

THE Annual General Meeting of the Bombay Geographical Society was held on Thursday, the 28th May 1868, at 5 P. M.

Present.—Commander G. T. Robinson, *Vice-President*, in the Chair; J. E. C. Pryce, Esq., F.R.G.S.; G. C. M. Birdwood, Esq., M.D.; Atmarám Pandurang, Esq., G.G.M.C.; F. J. Candy, Esq., M.A.; J. Firth, Esq.; K. R. Kama, Esq.; Bhagwandas Purshotamdas, Esq.; Dhirajrám Dalpatrám, Esq., G.G.M.C.; J. Mackinlay, Esq., F.R.G.S., M.R.A.S., *Members;* and Lieut. Henry Morland, F.R.A.S., F.R.G.S., *Honorary Secretary.*

Visitors.—Lieut. J. Brebner, and William Sowerby, Esq., C.E., F.G.S.

The Minutes of the last Meeting were read and confirmed.

Elections.—Shántárám Náráyan, Esq., and Javherílál Umiashankar Yajnik, Esq.

Member proposed.—William Sowerby, Esq., C.E., F.G.S.

Several donations to the Library were announced, for which the best thanks of the Society were voted to the donors.

Among the communications read were the following:—

1. Government Resolution No. 871 of the 9th May last, General Department, communicating a reply from the Secretary to the Government of the Panjáb that a Gazetteer for the Panjáb is under preparation, which, when completed, will supply much, if not all, the information required by the Society.

2. From the Secretary to Government, Political Department, forwarding the following communication:—

From JOHN KIRK, M.D., Her Majesty's Vice-Consul, Zanzibar.

To H. A. CHURCHILL, Esq., C.B., Her Majesty's Political Agent and Consul at Zanzibar.

SIR,—The natives attribute the present disorders at Quiloa to the "Maviti," a people well known on the N'yassa Lake, and of whom many rumours reach the Coast by the trading Arabs. The true Maviti of the hills west of N'yassa came originally from Zulu land, where their Chief rules as feudal lord from Delagoa Bay to Senna on the Zambezi, exacting tribute from the Crown estates of Portugal, on

the south bank of that river. The founder of this branch of the Kaffir family was Ziti, brother to Zulu. On the death of successive Chiefs it has been the custom in Zulu land, as among the Arabs of Oman, for the members of the Chief's family to strive for supreme power, the unsuccessful claimants being either killed or quitting the country with their followers, and amalgamating with the outlying people, or if powerful enough taking the country that best suits them. In this way Mosilikatze founded the Matibele, a people whose name is still the terror of Southern Africa.

2. In like manner about the time when Manakhouse, the late Chief of the Mazîti (people of Ziti) began to rule the country South of the Zambezi, a small band crossed that river, near Senna, and taking the tribal name of Maziti fought their way along the mountain ranges which overhang the eastern side of the Shire and Lake N'yassa. The lands of Bororo of the Manganja and Waiao were desolated in their line of march. Men and women were remorselessly killed, only those between the ages of five and ten being spared; these the Maziti took, to bring up, not as slaves, but as free men of their tribe. In the Waiao country they found abundance of cattle, which they drove off. At last, having gone round the North end of the N'yassa Lake, they settled on a high plateau 4,000 feet above the sea, in a healthy land, well suited for cattle, in which their only riches consist.

3. In 1860 Dr. Livingstone and myself met the outlying guards of these people, but were unable to gain access to their Chief. We were fortunate then in having one Matibele who had been taken in war and others who spoke fluently the Zulu language among our escort. In dress, as in language, those we saw corresponded exactly with the natives of Natal. On the N'yassa they are known as Mafiti or Maviti, a native corruption of their proper name, meaning as modified in the N'yassa tongue, "Sorcerers or Witches," so in the island of Zanzibar it gives to the native mind the idea of "Warriors." Although these Maviti have the language, mode of warfare and habits of the Southern Zulus, the individuals we saw certainly had no Zulu blood, but their filed teeth proclaimed them to be children, now grown up, of the tribes through which the conquerors had passed.

4. These people are in the habit of sending out marauding parties to keep their borders a desert, and thus protect their cattle posts from sudden attack, and to make war on all who possess flocks and herds.

The Maravi, Manganja, and A-Bisa have thus in succession suffered, and I have myself been a witness to the utter destruction which follows in their track. This system of plunder they have lately carried out along the Koouma, and the Arabs believe that the marauders who are causing so much bloodshed at the present time in the neighbourhood of Quiloa, are these genuine Maviti of the Lake. From the crude reports which reach us it is impossible to form a definite opinion as to whether this is or is not the case, but for my own part I am inclined to think that these people are a mixed band of Waiao and other tribes who from contact with the Maviti of the interior have adopted in part their mode of warfare and dress.

I have, &c.,

(Signed) JOHN KIRK.

Dated March 6th, 1868.

The business of the meeting having been terminated that of the Annual Meeting was taken up, and the following gentlemen were declared, from the Voting lists scrutinized by the committee, to be the office-bearers for the ensuing session of 1868-69:—

Vice-Presidents.—1. The Hon'ble Mr. Justice Newton, C.S. 2. Commander G. T. Robinson. 3. The Hon'ble George Foggo.

Resident Members of the Committee.—1. James Taylor, Esq. 2. Sir Jamsetjee Jejeebhoy, Bart., F.R.G.S. 3. Rao Saheb Vishvanath N. Mandlik. 4. J. Connon, Esq., M.A. 5. J. Burgess, Esq., F.R.G.S., M.R.A.S. 6. Bhau Daji, Esq., G.G.M.C., Hon. M.R.A.S. 7. G. C. M. Birdwood, Esq., M.D. 8. Captain G. F. Henry. 9. The Hon'ble L. H. Bayley. 10. The Hon'ble Mangaldas Nathubhai. 11. Cowasjee Jehangir Readymoney, Esq. 12. Venayekrao J. Sankarset, Esq.

Non-Resident Members.—1. Sir Alex. Grant, Bart., LL.D. 2. Col. H. J. Barr. 3. Dadabhai Naoroji, Esq. 4. H. E. General Sir W. R. Mansfield, K.C.B., G.C.S.I. 5. General G. LeGrand Jacob, C.B. 6. Colonel Sir A. B. Kemball, C.B., K.C.S.I., F.R.G.S. 7. T. C. Hope, Esq., C.S. 8. H. E. Rear-Admiral George St. Vincent King, C.B., R.N.

Auditors.—Major J. T. Annesley, and James Burgess, Esq., F.R.G.S., M.R.A.S., were re-elected Joint Auditors of the Society's Cash accounts for the past year.

Captain Morland then submitted the following brief summary of the proceedings of the past session :—

ANNUAL REPORT.

During the year under review the Society met four times, and the following were the papers laid before them :—

1. Memorandum on the Geological action on the South Coast of Káṭhiáwáḍ, and in the Raṇ of Kachh, by William Sowerby, Esq., C.E.,F.G.S.
2. Report of a Journey made by Captain E. C. Ross, Assistant Political Agent, Guadar, along that portion of the Mekran Coast, which lies between Cape Jask and Guadar.
3. Supplementary Memorandum on the Geological action on the South Coast of Káṭhiáwáḍ, and in the Raṇ of Kachh; also on the adjacent Coast line, as far as Karáchí, by William Sowerby, Esq., C.E., F.G.S.

Among the three papers noticed above, two were contributed by a gentleman not in any way connected with the Society, but who yet takes a warm interest in its affairs. It is indeed a matter of regret to add here that notwithstanding the appeal made last year, not a single member has come forward during the last Session to favor the Society with any *original* communication. It is, however, hoped that the coming year will be more fruitful of papers than the last.

The total number of Members on the roll of the Society at the last Annual Meeting was 151, since then six gentlemen had been admitted to Membership of the Society, making a total of 157 Members. Against this, however, the Society have lost 16 Members, of whom there have been removed—

By death 5.—1. The Revd. W. K. Fletcher, M. A. 2. M. H. Scott, Esq. 3. C. Leggett, Esq. 4. Kaliandas Mohandas, Esq. 5. Edward Chapple, Esq.

By retirement from India 5.—1. John Ritchie, Esq. 2. Richard Willis, Esq. 3. Deputy Inspector General of Hospitals H. D. Glasse. 4. Surgeon Major W. Campbell, M.D. 5. C. Forjett, Esq.

By resignation of membership 6.—1. Mírza Ali Mahomed Khan, Esq. 2. Narayan Daji, Esq., G.G.M.C. 3. Kawasji Manakji, Esq. 4. Homji Khursetji Dady, Esq. 5. F. King, Esq. 6. Captain Van-Heythusen.

In all 16 Members, leaving 141 Members at this date.

An appeal was made to some influential and leading gentlemen to extend their patronage to the Society by Membership. This was, however, only partially successful. One cause which detracts from the success of the Society is doubtless the very undesirable situation of the room it at present occupies. Government have been applied to for one of the rooms below the Library of the Asiatic Society vacated by Colonel Worgan, Deputy Inspector General of Ordnance and Magazines, but no reply has yet been received to the application.

The Rev. Mr. Fletcher joined the Society in the year 1859. He went home last year to recruit his failing health, and was suddenly snatched away from the sphere of his usefulness. On receipt of the news of this lamentable occurrence, the Society, in appreciation of his valuable services rendered since his connection with them, recorded the following resolution:—

"That this Society place on record the expression of the deep sorrow with which they have heard of the death of the Rev. W. K. Fletcher, M.A., for nine years a respected member of the Society, and latterly one of their Vice-Presidents, and their testimony to his amiable disposition, high character, and the warm interest he has always taken in the affairs of the Society."

Copies of the General Index to the Contents of the first seventeen volumes of the Society's Transactions, combined with catalogues of the Books, Maps, Charts, &c., were placed before the Society in September last. It is needless to remind them that this work was superintended by Mr. Kennelly on account of the benefaction of Bhagwandas Parshotamdas, Esq., who had placed at their disposal the sum of Rs. 3,500 for the purpose. £231-5-3 or Rs. 2406-11-6 have been spent on account of this publication, and the balance of Rs. 1,093-4-6 available from this grant was, by their permission, appropriated for general purposes.

The collection of books ordered on account of the Khursetji Fardunji Parak grant has come to hand. Rs. 1,500 were presented by the donor, out of which £132-4-9, or Rs. 1,379-8-0, were required for the purchase of the books. The surplus—Rs. 120-8-0—has been laid out in the purchase of a Book Case for the accommodation of this valuable collection.

Rs. 1,000 out of the Premchand Raichand grant of Rs. 5,000 made for the purchase of Maps, Charts, &c., were by a resolution of the Society retained for general purposes. Rs. 538-10-11 have been disbursed in purchasing Maps, &c. There is now, therefore, a balance of Rs. 3,461-5-1 available from this grant, which will be applied towards making other accessions to the Library according to the requirements of the Society.

Mr. Sorabji Pestanji Framji had granted the sum of Rs. 1,000 for reprint of Volume 6 of the Society's Transactions. The total amount required, however, on account of this publication was £151-18-2, or Rs. 1,594-5-5. The excess of Rs. 594-5-2 has therefore been borne by the Society out of their funds.

Of the Frere Portrait Fund, £100 or Rs. 1054-15-1 have been remitted to W. E. Frere, Esq., being a first instalment on account of the execution of his Portrait. There is a balance of Rs. 610-0-11 with the Society on account of this Fund. The disposal of the remittance, the selection of an artist, the size of the Portrait, &c. have been left entirely to Mr. Frere's discretion, and it is to be hoped that the Portrait, when received, would realize the expectations of the subscribers.

The sum of £26-10-10 or Rs. 280 was remitted to the Royal Geographical Society of London in September last, being the amount collected up to that date for the Speke Memorial. There is balance with the Society of Rs. 10 on account of this Fund, which, together with the subscriptions still under recovery, will be remitted to England in due course.

The most important feature in the proceedings of the last Session is a scheme at present under the consideration of the Society for the compilation of an Anglo-Vernacular Index of Indian Geographical names. Mr. Burgess, who has all along evinced the greatest interest in our affairs, first called the Society's attention to this important matter, and is therefore entitled to their best acknowledgments for originating the idea. An outline of a general plan having been agreed upon by the Sub-Committee appointed for its preparation, it was approved of by the Society, who unanimously resolved to recommend it to the favourable consideration of the Government of Bombay. As this scheme is yet in an infant state, and its success somewhat doubtful, it is premature to expatiate on the subject. In the event of the undertaking being carried out, the proposed scheme will supply a long felt want, and lend valuable aid to the cause of science.

The eighteenth volume, comprising the Society's Transactions for the years 1865-66-67, is this day submitted. I have to represent to the Society the valuable assistance which I have received from my clerk, Mr. Balvant Krishnarao Palekar, in editing this volume. He has all along shown the greatest intelligence, assiduity, and zeal in the discharge of his duties.

At the conclusion of the report, the annual statement of Receipts and Disbursements on account of the Society from 1st May 1867 to 30th April 1868, submitted to the Society, showed a balance of Rs. 7,021-14-7 to its credit. This sum comprised the cash balances of three other funds in trust with the Society.

The report submitted by the Secretary having been adopted, Dr. Birdwood observed, that the chief cause of the Society's want of success was the obscure situation of the room in which they met. It was the dingiest, dustiest, closest, and meanest room in the Town Hall. He remarked that he had applied to Government for the rooms on the groundfloor of the Town Hall, below the Library of the Asiatic Society being made over to the Society. Should this application be complied with, he would be very happy to make over two of the rooms to the Geographical and Medical and Physical Societies, so that all the learned Societies of Bombay might be brought together in the northern wing of the Town Hall. He feared, however, that some Military Departments wanted the rooms applied for by him; and in anticipation of their being quartered in them would move,—"That the Geographical Society having heard that the Rooms under the Library of the Asiatic Society applied for by them have been made over to the Military Department, would, with reference to previous correspondence on the subject (No. 96 dated the 24th December 1867) respectfully urge on Government their prior and weightier claim to the same."

This resolution was seconded by Captain Morland, and unanimously carried.

Mr. Firth remarked, that seeing Mr. Sowerby present, to whom the Society was indebted for the original article No. VII. which appears at page 97 et seq. of the Society's recently issued volume, he would take this opportunity of mentioning that Mr. Sowerby had aided the Society with a very interesting contribution on a subject which was now attracting much attention, and on which opinions were variously expressed by many experienced professional men. The illustration

of facts and data such as Mr. Sowerby had written were aids to a correct understanding of the theory of the supposed rise or depression of our Coast line, which according to his paper had not taken place, as the apparent rise or depression were due solely to the change of mean sea level, brought about by certain influences of the tidal wave. The Model Charts illustrated Mr. Sowerby's statement very clearly, and Mr. Firth hoped Mr. Sowerby would, as contemplated, favour this Society with a further paper on the subject at some early date. Mr. Firth further remarked, that the expense of colouring the model charts was almost beyond the means of the Society, but Mr. Sowerby had very kindly offered to help in that matter, so that the Society would be relieved of some considerable expense on that head.

Mr. Sowerby remarked, that he would have much pleasure in preparing the charts. That this method of treating charts is not unknown to Hydrographers; it showed the bed of the Ocean in a remarkably clear manner, and by a careful study of such charts, the peculiarities of coasts could be ascertained. He intimated his intention of preparing a paper on the great tides of the Indian Ocean, the peculiar oscillation of which within 30 degrees (1800 miles) was quite a discovery, and deserved further investigation.

It was then proposed by Dr. Birdwood, seconded by Mr. Atmaram Pandurang, and unanimously carried, that Captain Morland was entitled to the best acknowledgments of the Society for Vol. 18 of the Transactions laid before them.

On the motion of Dr. Birdwood, seconded by Mr. Dhirajlal Dalpatram, the best thanks of the Society were voted to the Office-bearers for their zealous and effective services during the past year, and the meeting adjourned.

SESSION 1868-69.

First Meeting.—*November 26th*, 1868.

The ordinary Monthly Meeting of the Bombay Geographical Society was held on Thursday, the 26th November 1868, at 5 P. M.

Present.—J. Burgess, Esq., F.R.G.S., M.R.A.S., *Senior Member*, in the Chair; Captain G. F. Henry; J. McDonald, Esq.; Javherilál Umiashanker Yajnik, Esq.; Dhirajrám Dalpatrám, Esq., G.G.M.C.; D. E. Gostling, Esq., *Members;* and Lieutenant Henry Morland, F.R.A.S., F.R.G.S., *Honorary Secretary.*

The Minutes of the last Meeting were read and confirmed.

Elections.—William Sowerby, Esq., C.E., F.G.S., who was duly proposed and seconded at the last Meeting, was, after Ballot, declared a member of the Society. R. Proctor-Sims, Esq., C.E., F.R.G.S.; and Náráyan Vásudevji, Esq., were admitted under Rule XXII. of the Society.

Several donations to the Library were announced, for which the best thanks of the Society were voted to the donors.

Among the letters read before the Society, was the following correspondence on the subject of the Anglo-Vernacular Index of Indian Geographical names :—

No. 1055.—General Department.

Bombay Castle, 5th June, 1868.

Letter from the Honorary Secretary to the Bombay Geographical Society No. 13, dated 20th May 1868, with accompaniment—stating, with reference to Government Resolution No. 655, dated 8th April 1868, that Government appear to have misunderstood the proposal of the Society with regard to the preparation of an Anglo-Vernacular Index of Indian Geographical names, and explaining their object more explicitly.

Resolution.—Government regret that the Resolution of the 8th April should not have been understood by the Geographical Society.

2. An Index or List of Places which is to be at once geographical, etymological, historical and statistical, though called an Index, will not be very dissimilar in character from a Gazetteer, and it was thought that the Government Gazetteer Committee, with the materials which they will have at their command, would be able to give the Geographical Society valuable aid in the preparation of such a work as the Society have in view.

3. Government will be very glad to render the Society assistance in the publication of an independent work, and the returns obtained by Mr. Erskine will be placed at their disposal.

4. With regard, however, to the employment of Mamlutdars, the Society have over-estimated the leisure time of those hard-worked Officers, as well as their capacity for furnishing the information wanted by the Society. It is no reflection upon the body of Mamlutdars to say that the majority of them are destitute of scientific attainments; that

they are unable to determine the latitude and longitude of places in their districts, or the altitude of mountain peaks; and, further, that their knowledge of Sanskrit and Ancient History cannot be depended upon.

5. Should the funds of the Society be able to afford to pay well-educated persons to collect the information, His Excellency in Council will give the necessary orders to the Revenue and Political Officers to give them every assistance they require.

F. R. S. WYLLIE,
For Acting Chief Secretary to Government.

To

The HONORARY SECRETARY to the BOMBAY GEOGRAPHICAL SOCIETY.
The DIRECTOR of PUBLIC INSTRUCTION.
The REVENUE COMMISSIONER N. D.
The REVENUE COMMISSIONER S. D.

No. 1811.

EXTRACT from the Proceedings of the Government of Bombay, in the General Department, dated 30th September, 1867.

Read the following papers:—

Letter from Captain J. Morland, Honorary Secretary, Bombay Geographical Society, to the Chief Secretary to Government, Bombay, No. 79, dated 16th September 1868.

With reference to the Government Resolution No. 1055, General Department, dated the 5th June last, I have the honor, by desire of the Bombay Geographical Society, to enclose copy of a letter received from Mr. Burgess on the subject of the proposed Index, for the information of Government, and to state that the Committee appointed to compile the Index entirely concur in the views expressed by Mr. Burgess.

Letter from J. Burgess, Esq., to Captain J. Morland, F.R.G.S., &c., Honorary Secretary, Bombay Geographical Society, dated 23rd June 1868.

I have read with some surprise the Government Resolution No. 1055. It seems strange that Government should so misunderstand the plans of our Committee as to imagine that any member of the Geographical Society expected latitudes and longitudes, altitudes, and Sanskrit, from Mamlutdars. All the Society wanted was the correct spelling of the villages and other local names in their respective districts; how far

each is from some of the more important ones; whether fairs (*melas*) are held at any, and when; what notable temples or ruins are near or at any of them; and any other item of local knowledge they might personally possess; and these Officers must be very hard wrought indeed if they could not find time to fill up a sheet of foolscap each, which at most would be sufficient to contain all the desiderata required.

In paragraph 2, Government seems still to insist that the Committee's Index is a Gazetteer. Now it bears about the same relation to a Gazetteer that a small Dictionary does to an Encyclopædia. The former contains many words, the latter does not; but at most it gives their roots and meanings, and does not discuss their history, or the ideas and subjects they represent. So the Committee's Index is intended to comprehend every name on the maps of India (and most of them at least twice over in different forms), with their localities, and such memoranda as can be given in two or atmost three lines on an average to each. The latitudes, longitudes, and historic information, of course, must be supplied by the Society, and the Mamlutdars were only expected to supply the pure native orthography, and any other local information they possessed.

I do not understand paragraph 5. If the Society could afford to pay well educated persons to collect the information by going about the country it would not require any very special assistance from Revenue and Political Officers; and, on the other hand, the Committee of the Geographical Society, although not paid for the work, are collectors of the information required, and, for myself, as a Member of that Committee, I am prepared to undertake for the Society at least half the works mentioned in paragraph 6 of the "Plan of the Index," and to give every assistance in supervising the whole of the latitudes and longitudes, contributing at the same time all the other information required that I am possessed of, and all I ask is the spare time of the Society's Clerk to copy for me and arrange the names in alphabetical order, or do such work for me as he may be fit for.

Government deserves our thanks, however, for having consented to place at the disposal of the Society Mr. Erskine's returns of population in 1851; and it would be well to apply for them at once, and set the Clerk to work on them. I shall be most happy to guide him in the work to be done.

It is gratifying to find the Government of India so well disposed towards the Society's scheme. We have, in paragraph 5 of the "Plan,"

agreed to use native characters, and a uniform system of spelling the transliterated names, viz., the system practised by English and Continental Orientalists; and I cannot help regretting that the ill-advised scheme of the Bengal Asiatic Society (a scheme adopted by no one else but its projector, the late Professor H. H. Wilson) should be approved of.

RESOLUTION.—The request of the Geographical Society as now modified may be complied with, and the Collectors should be desired to obtain from all Mamlutdars, and forward to the Secretary, Geographical Society, a list in the Vernacular, of all towns and villages in their charges, giving any particulars as regards Melas, Jatras, Bazars, and old or celebrated temples, or other buildings and ruins, for which they may be famous.

2. The papers named in the penultimate paragraph of Mr. Burgess' letter should be placed at the disposal of the Society.

Ordered that copies of the above be forwarded to—

The HONORARY SECRETARY to the BOMBAY GEOGRAPHICAL SOCIETY, with the papers referred to in paragraph 2.

The DIRECTOR of PUBLIC INSTRUCTION.

The REVENUE COMMISSIONER N. D.

The REVENUE COMMISSIONER S. D.

All COLLECTORS, SUB-COLLECTORS, and the FIRST ASSISTANT COLLECTOR in charge PANCH MAHALS.

The ORIENTAL TRANSLATOR to GOVERNMENT.

F. R. S. WYLLIE.

For Acting Chief Secretary to Government.

Captain Morland then read the two papers announced for the evening:

1. Notes on Annesley Bay, by Edwin Dawes, Esq., late I. N.

2. Copy of a Despatch addressed by H. A. Churchill, Esq., C.B., Political Agent to H. M.'s Principal Secretary of State for India for Foreign Affairs, on the subject of the supposed survivors of the "St. Abbs," contributed by Government.

On the motion of Captain Henry, seconded by Captain Morland, the best thanks of the Society were voted to Mr. Dawes for his very intersting and valuable paper, and the meeting adjourned to next month.

SESSION 1868-69.

Second Meeting.—*March 18th*, 1869.

The ordinary Monthly Meeting of the Bombay Geographical Society was held in their Rooms, Town Hall, on Thursday, the 18th March, at 5 P.M.

Present.—Dr. Bhau Daji, Hon. M.R.A.S., *Senior Member*, in the Chair; F. J. Candy, Esq., M.A.; Javherilal Umiashankar Yajnik, Esq.; J. Mackinlay, Esq., F.R.G.S., M.R.A.S.; Rao Saheb Vishvanath Narayan Mandlik; J. Burgess, Esq., F.R.G.S., M.R.A.S.

Mr. Burgess officiated for Captain Morland, who was unable to be present at the Meeting in consequence of ill-health.

The Minutes of the last Meeting were read and confirmed.

Election.—Lestock Reid, Esq., C.S., having requested admittance, was elected a Member under Rule XXII. of the Society.

Members proposed.—Lieut. G. O'B. Carew, Dock-Master, Bombay, and Jamsetji Dhanjibhai Vadia, Esq., Master Builder, H. M.'s Dock-yard, were proposed Members of the Society.

Among the donations laid before the Society, there was an excellent photograph of the Bombay Harbour taken from the Time Ball Tower on the North-East Bastion of the Castle, showing the fleet of 250 vessels returned from the Abyssinian Expedition, and other ships in the Harbour, presented by the Harbour and Pilotage Board.

Among the letters read before the Society there were the following:—

1. From the Secretary to Government, General Department, forwarding the following copy of a despatch and of its enclosure from Her Majesty's Secretary of State for India regarding the alleged survivors of the ship "St. Abbs."

Political.—No. 8.

His Excellency the Right Honorable

THE GOVERNOR in Council, Bombay.

India Office, *London*, 20*th January* 1869.

Sir,—I have to acknowledge the letter of your Excellency's Government, No. 70, dated 7th November 1868, with enclosed Memorandum

collected at the Seychelles, by Captain H. A. Fraser, late of the Indian Navy, respecting the alleged survivors of the "St. Abbs" and copy of Mr. Churchill's despatch to Lord Stanley, No. 22, of the 31st July 1868. Copies of these interesting documents had already been furnished to the Royal Geographical Society of London by the Foreign Office.

2. I avail myself of this opportunity to forward, for the information of your Excellency's Government, a transcript of a valuable report on the same subject by Mr. S. Ward, Civil Commissioner at the Seychelles, which has been supplied to this office by the courtesy of the Colonial Department of Her Majesty's Government.

Seychelles, 16th April 1868.

3. I regret to find that these reports are unfavorable to the probability that any survivors of the shipwreck of the "St. Abbs" are yet alive.

I have the honor to be, &c.,

(Signed) ARGYLL.

Civil Commissioner S. WARD to Governor Sir H. BARKLY.

GOVERNMENT HOUSE, *Seychelles*, 16*th April* 1868.

SIR,—From letters lately published in the public journals in England, and from a paper read at a Meeting of the Royal Geographical Society by Colonel Rigby, formerly Political Agent at Zanzibar, on the subject of a vessel named the "St. Abbs," wrecked on Juan de Nova in 1855, it appears that a strong belief is still entertained in the existence of a large portion of the passengers and crew, who are supposed to have been saved upon the after part of the vessel, to have drifted to Magadesho on the East Coast of Africa, and to be now in captivity among the Somalis far in the interior.

2. As this matter has lately engrossed so much public attention that the Government has been urged through the papers to take some steps for the release of these supposed captives, I think it right to bring forward some arguments based upon local experience and investigation, which induce me to think that none of the passengers and crew, beyond those who succeeded in landing on Juan de Nova,

escaped, and that although there may be white men in captivity among the Somalis, it is most improbable to suppose that they could have belonged to the ill fated " St. Abbs."

3. In the protest made by the Captain on his arrival at Seychelles, a most unsatisfactory document, he gives the names of the individuals saved, and states that in the course of the night after these few had succeeded in reching the shore the major portion of the ship disappeared, but he does not give any reason for this " disappearance." It was subsequently ascertained that three men, not identified, got on to one of the smaller islets or uncovered portions of the reef, but perished miserably for want of water.

4. After the vessel struck all discipline on board was at an end, the spirit room was broken into, and hopeless confusion prevailed. The violence of the wind and the sea was so great that no boat could live, only the fore part of the vessel was upon the reef, and there was no doubt whatever that during the night the wrecked ship broke in two, close to the foremast, and that all the after part, about two thirds, sank in the deep water outside the reef. The forepart was driven along the reef to a distance of a quarter of a mile from the spot on which she struck, and the remainder was clearly seen by the men who made the salvage, and is, I am assured, still visible when the water is smooth and clear, part of the cargo consisted of heavy machinery for two steam vessels building at Bombay, the weight of which would effectually counteract the action of the currents, and keep the ship in the place where it sank. Six months after the wreck a hundred barrels of beer and porter released by the bursting of the planks floated out of the hull and were saved.

5. Admitting that the poop and a portion of the bulwarks had floated it is barely credible that a mass of timber, borne away from the body of a ship by the violence of a raging sea, would have held together sufficiently to transport in safety, with no steering apparatus, a number of men from Juan de Nova to Magadesho, a distance of over a thousand miles under even the most favorable conditions of wind and currents. But at the season of the year when the " St. Abbs" was wrecked, the South East Monsoon was at its fullest vigour, and judging by what is known respecting the currents in these seas, their " set" would not have carried the debris of a wreck in the direction of Magadesho. The south-east wind and the well ascertained outward set of the currents at this season would have driven it rather in the

direction of the Seychelles than of the African Coast. The latter course would be easy enough for a ship properly managed, as she would have the wind on her quarter, but impossible for an ungovernable mass of timber at the mercy of the wind and the waves.

6. I may mention several instances which have come within my own knowledge, all tending to prove that the direction taken by any floating mass would have been during the South East Monsoon N.N.W. in lieu of N.N.E. Last year the "Borodino," an American vessel, went on shore on Juan de Nova at the same time of the year that the wreck of the "St. Abbs" took place. The charts, instruments and everything that could be handed over were put on shore, but during the night, when the tide was full she floated off, and eventually came up to within a short distance of this Island. She was then making so much water that the men on board were compelled to abandon her, and landed upon North Island, sixteen miles distant from Mahé. Another vessel dismasted near Cape Amber arrived here without a rudder under a small jury rig driven to Seychelles by the wind and the currents. The "Volanti" was last year burnt at sea 560 miles to the south of the Seychelles. The crew escaped, and made this port in the ship's boats without any difficulty, running before the wind all the way. The vessel blew up soon after the boats left, and portion of her cargo, a large iron tank, and a barrel full of boots, were stranded upon Silhouette Island, the most westward of the Seychelles group, a short time afterwards. All these facts tend distinctly to prove that, if a broken portion of the "St. Abbs" really floated off, a most unlikely occurrence, it would, according to all recognised theories, have drifted in the direction of the Seychelles rather than in that of Magadesho.

7. There is no reason to doubt that many articles forming part of the cargo of the "St. Abbs" were brought to Zanzibar, but the above arguments are greatly against the possibility of their having been, in the first instance, obtained from Magadesho. Arab vessels are constantly trading in the vicinity of the Comoro Islands and on the coasts of Madagascar, and the articles in question were, in all likelihood, picked up south of Zanzibar, and either taken there direct, or further on to Magadesho, from whence they were eventually brought down to Zanzibar. This could not have happened during the continuance of the South East Monsoon, as no Arab vessel would attempt to come south at that season, the wind being directly contrary.

8. It is also notorious that it is extremely difficult to arrive at any-

thing approaching to the truth with respect to occurrences on the East coast of Africa. Dr. Livingston's death was reported, in official dispatches, with a number of minute details, and exact particulars to all appearance saturated with truth; the advent of the "Mafites," the attack, the fight, the number killed by Dr. Livingston, and even the surgical appearance of the wound received by the "Martyr Traveller," were all most faithfully described; all of which details we are now informed are entire fabrications. Arab reports should always be received with the greatest caution, especially with regard to the supposed captives "far in the interior," for although Magadesho belongs to our ally the Sultan of Zanzibar, no information respecting either the captives or the wreck has ever been obtained from him.

9. Considerable stress is laid on the fact that some letters, in English character, were cut upon a hide brought to Zanzibar from the mainland, but it has been found impossible to trace the origin of this hide, and the purchasers of it are not at all prepared to state that it did not come from Aden. Such being the case, it can hardly be accepted as evidence of the existence of white captives "far in the interior," and it is to be regretted that hopes should have been raised in the minds of the relatives and friends of those wrecked in the "St. Abbs" on such very slight grounds.

10. The large portion of the vessel still remaining in the deep water just outside the reef upon which she struck, the extreme improbability of any portion which may have become detached from the ship having retained sufficient footing power to have been the means of saving a number of lives in the very heavy weather which prevailed at the time; and the arguments put forward above with respect to the direction taken by any ungovernable mass at the mercy of the winds and currents, cannot, I think, but lead to the conclusion that none of the unfortunate people who were left upon the "St. Abbs" at the time that the after part disappeared, are still in existence, and that the white captives, if actualities, must have belonged to some other unfortunate vessel wrecked upon the Somalee Coast.

I have, &c.
(Signed) S. WARD.

His Excellency Sir H. BARKLY, K.C.B.,
&c. &c. &c.

(True Copies.)

R. RYAN.
Assistant Secretary.

2. From the Acting Chief Secretary to Government, Political Department, forwarding an Extract (para. 1) from a letter from the Political Resident at Aden, and of the statement made by Haji Othman relative to the fate of the Baron von der Deken :—

Extract para. 1 *from a letter from the Resident at Aden, dated 27th November No.* $\frac{470}{1262}$ *of* 1868.

Para. 1. I have the honour to forward the accompanying statement made before Captain Goodfellow, 1st Assistant Resident, by Haji Othman bin Abdulla, a resident of Brawa, near Magadoxo, on the East Coast of Africa. This man was engaged as an Interpreter to Mr. Kinzlebach, the person who was sent to enquire after the fate of the Baron von der Deken. On Mr. Kinzlebach's death the Interpreter was returning from Zanzibar towards Aden, when from stress of weather he was driven into the port mentioned in his statement. The Haji says that the man he said and spoke to had a shaven chin, but wore a moustache, and looked like a Hindoo, he spoke Somalee fluently. I forward his statement, which was given gratuitously, as it may be of interest; it may hereafter throw some light on the supposed captives said to be in the interior of Africa: possibly the fair man said to be in the centre of Africa about the latitude of Murka, and supposed to be survivor of the "St. Abbs," may be the three Hindoos reported in the accompanying statement.

(True Extract.)

C. GONNE,

Assistant Secretary to Government.

Translation.

"I, the Haj Othman bin Abdulla, a native of Brawa, state, that we sailed from Bandar Murkah on the 19th Jumad-al-akhir 1285, on a Tuesday for Mukalla; on the Wednesday and Thursday following we encountered a heavy storm opposite Haskul, in the land of the Abgal, in consequence of the high wind we put into Haskul; and remained the Friday and Saturday in the port. We could not land in consequence of the heavy weather, which however abated a little on Saturday night, and on Sunday morning we landed and went to the bir, the watering place; we found there people of the Abgal watering their beasts, and amongst their number a man of a reddish colour, not very tall or short, but of moderate statute, his right ear was bored. I asked concerning him, and said to him, who are you. He replied I

am a Banian. I said if you are a Banian you should know Arabic. He said no. I replied how did you learn Somalee, and how did you get amongst these people. He said I did not intend to go to the Somali Country, but I was shipwrecked, and we landed at Haweiyeh, and a number of people met us on the shore, and they plundered our property, and killed a number of us, all but three,—and they sent us into the interior of the country. I asked him how long have you been in their hands, he said 12 years or thirteen, with two other my companions and they are now in the villiage, and I am a servant to these people, and water their cattle with them, and my companions do likewise. I asked him what do you eat. He replied grain (jowaree) and meat and milk. I asked him are you married to any one amongst these people. He replied no, I am not. I said are you still of your former religion, or have you turned Muhammadan. He answered in my own religion."

"Our sailors then took their water, and gave some grain in exchange for the water, and we went on board our boat the same day, and set sail, viz. on Saturday 24th Jumad-al-akhir 1285."

True translation of a written statement delivered to me this 27th November 1868 by the said Haj Othman bin Abdulla ab-Arawee.

(Signed) G. R. GOODFELLOW, Captain,
Assistant Resident, Aden.

I endeavoured to elicit further information from Haj Othman by questioning him a few days ago, but could get nothing further than what is recorded in his statement, which he wrote down at my request.

(Signed) G. R. GOODFELLOW, Captain,
Assistant Resident, Aden.

(Signed) E. L. RUSSELL, Major General,
Resident at Aden.

Aden, 27th November 1868.

(True Copies.) A. CARRON,
Assistant Secretary.

The paper "Notes on the Hot Springs of Lasundra, in the Kaira Zilla," by Javherilal Umiashankar Yajnik, Esq., was then read by the author.

At the conclusion of the paper, it was proposed by Dr. Bhau Daji, seconded by Rao Saheb Vishvanath Narayan Mandlik, and unanimously

carried, that Mr. Javherilal was entitled to the best acknowledgments of the Society for his valuable and interesting paper. The meeting then adjourned to next month.

SESSION 1868-69.

THIRD MEETING.—*April 15th*, 1869.

THE ordinary Monthly Meeting of the Bombay Geographical Society was held in their Rooms, Town Hall, on Thursday, the 15th April, at 5 P.M.

Present.—Captain G. T. Robinson, *Vice-President*, in the chair; J. Burgess, Esq., F.R.G.S., M.R.A.S.; Javherilal Umiashankar Yajnik, Esq.; Bhagvandas Purshotamdas, Esq.; The Hon'ble J. S. White, B.A.; J. Connon, Esq., M.A.; Manekji Khursetji, Esq., F.R.G.S., F.R.S.N.A.; and Lieut. W. L. Searle, F.R.A.S.

Mr. Burgess, at the request of the Vice-President, officiated for Captain Morland, Honorary Secretary, who had proceeded to Europe on sick leave.

The Minutes of the last Meeting were read and confirmed.

Elections.—Lieutenant G. O'B. Carew, and Jamsetji Dhanjibhai Wadia, Esq., who were duly proposed and seconded at the last meeting, were, after ballot, declared members of the Society. Wellington Gray, Esq., M.B., having requested admittance, was elected a member under Rule XXII. of the Society.

The donations laid before the Society comprised many valuable publications transmitted by the Smithsonian Institution, Boston Society of Natural History, and other Societies of America. There was also a copy of the map of the Route from Annesley Bay to Magdala, executed by the officers of the Indian Survey, and presented by the Secretary of State for War.

Captain Robinson then read the following letter addressed to him by Captain Morland on the eve of his departure to Europe :—

DEAR SIR,—As I am compelled to leave India by the next mail in consequence of failing health, I beg you will be good enough to intimate to the Society, at their next Meeting, the cause of my hurried departure, and take measures for the nomination of my

successor. I would suggest that the officiating secretaryship be offered to Mr. Burgess, who has been evincing so much interest and zeal in furthering the objects of the Society since his connection with it. He is also entitled to the honour by his having undertaken the compilation of the Anglo-Vernacular Index of Indian Geographical Names contemplated by the Society.

I am, dear Sir,
Yours very sincerely,
HENRY MORLAND.

2nd April 1869.

On the motion of Captain Robinson, seconded by Mr. Manekji Khursetji, Mr. Burgess was unanimously elected Honorary Secretary to the Society pro tem.

Mr. Burgess, on accepting the appointment, remarked that as he was required to officiate for Captain Morland only for a year, he was most happy in being able to accede to the Society's wishes.

GEOLOGICAL ACTION ON THE KATHIAWAD COAST, &C.

The following correspondence, received from the Bombay Government on the subject of geological action on the Káthiáwaḍ Coast and in the Raṇ, was then read :—

From Colonel W. W. ANDERSON, Political Agent in Káthiáwaḍ.

To C. GONNE, ESQ., Acting Chief Secretary to Government, Bombay, Political Department.

2nd December 1868.

SIR,—Referring to former correspondence on the subject of the encroachments of the sea in the Raṇ of Kachh and on other parts of the coast of Káthiáwaḍ, I now have the honour to forward copy of a communication from my Assistant, Captain Watson, showing the results of the observations made by him during a recent visit to the shores of the Gulf of Kachh.

2. As the subject is one of great interest both to the geologists as well as to the traders in those seas, Government may perhaps deem it advantageous to place this paper at the service of scientific bodies and others interested in the question.

I have the honour to be, &c.,
W. W. ANDERSON,
Political Agent.

Káthiáwaḍ, Political Agent's Office,
2nd December 1868.

From Captain J. W. WATSON, Political Assistant, Káthiáwad in charge Western District.

To Colonel W. W. ANDERSON, Political Agent, Káthiáwad.

Rajkot, 15th October 1868.

SIR,—In a recent trip to the coast of the Gulf of Kachh and the Ran, I made a point of personally visiting, where practicable, the southern shore both of the Gulf and of the Ran, and at the same time to collect all information that was practicable regarding the encroachment of the sea on the land, and of the changes, if any, in the level of the Ran. From all I saw and heard I am led to differ entirely with a report of Captain Hebbert's, No. 40 of 1867, addressed to the Political Agent, Káthiáwad. It is, however, but fair to say that Captain Hebbert never visited the Ran in person, and the opinions enunciated in the report above quoted are gleaned from Mehtas and others who are of all persons the most unlikely to know anything about changes of level, and who are also most unqualified to judge. In the only case where boatmen appear to have been asked, *i. e.* regarding the Jhinjura Wowania creeks, they unanimously declared that the creeks were pushing their way further into the Ran, and that the increase of water in the Ran itself, though slight, was nevertheless perceptible. Nor is it apparent why Captain Hebbert should consider the increase of Ran at the mouth of the Dadhiali was caused by the river and not by the sea. The rivers of India have notoriously lessened, and not increased, in volume, and the rainfall has in Gujarat of late years diminished owing to the reckless way in which hills have been denuded of forest, and the land cleared of trees and brushwood. Further, unless the level had changed, the sea could not have encroached so far in excess of its former limits. Captain Hebbert says in paragraphs 21 and 22 that—

"No changes have been noticed in any other creeks or on the coast west of Navanagar, though an agent was specially sent to make enquiries at Seryah, Pindari, and the islands of Ajar.

"Neither have any changes whatever been noticed along the south-west coast of Káthiáwad, Miyani, Purbandar, Mangrol," &c.

2. I shall be able to prove that, as far as paragraph 21 is concerned, Captain Hebbert was in error, and from what I know of the southern and western coast, as well as the southern shore of the Gulf of Kachh and the Ran, I am inclined to think that an intelligent investigation of Miyani, Purbandar, &c., would show that the coast on that side is no

exception to the general rule. Captain Hebbert seems to have been influenced throughout his report by an idea that a depression of level could not be caused by volcanic agency, and that *all* manifestations of volcanic energy must necessarily tend to an elevation rather than a depression of level.

3. For the above reasons I have addressed the Chiefs of Navanagar, Morvi, and Mallia themselves, and append their replies to this report.

Navanagar states that the sea is encroaching rapidly at the islands of Ajar, Chaka, Bahidar, &c., in the Gulf of Kachh. That Ajar was once a portion of the main land, and that it has but recently, *i. e.* within the last 100 years, by the action of the sea, become an island. Even now at low tide it is impossible for a foot-passenger to pass over to Ajar from the main land: two small creeks alone have to be swam across; but the sea is gradually rising in level, and the passage becomes daily more difficult. Chaka and Bahidar, &c. were once notable islands, but are now covered by the salt water at high tide. With reference to these islands, Colonel Rigby, in his report No. 2 of 1865, to the Acting Secretary to Government, Bombay, states in his 5th paragraph—

"They belong to a very extensive archipelago of islands and reefs which extends all along the coast of Hálar, and which has probably become detached from the main land during a recent geological period by the encroachment of the waters of the Gulf of Kachh."

With reference to the island of Ajar, Colonel Rigby states—

"The island contains three wells of brackish water, and there are remains of several large tanks and ancient ruins of houses."

Thus showing that it once was a flourishing settlement, and that it has been doubtless reduced to its present condition by the encroachments of the sea.

4. At the port of Seryah the advance of the sea is not so marked, but it increases rather than diminishes. At the little village of Beri—the port of Navanagar—the advance of the sea has been most marked. The sea has forced its way up the mouth of the Nagra and Ranmati rivers, which unite near Navanagar, and converted the lower part into a tidal creek, the land on either side being covered by the sea water at high tide for miles. This advance of the sea has been so marked in the last 20 years that the Nagar Darbar have now thought of building a bandar-head on this insignificant creek, and a raised road and

bandar-head have been lately constructed there by His Highness the Jam, at a cost of three lakhs of rupees. Near Suchana are two small islands connected with the shore at low water, but which become islands at high tides. The land of these islands is being rapidly washed away, and the distance between the islands themselves is gradually increasing. The sea has encroached about 4 feet inland along the whole line of coast between Suchana and Balachedi—a distance of about $1\frac{1}{2}$ miles,—while it has much enlarged the several small islands (Raṇs) between Suchana and Juria, including the Raṇ of Balachedi itself. At Balambha the progress of the sea is even more marked. The Balambha authorities report that so late as 1808, a foot passenger could cross over from Balambha to Rahur and Tuna in Kachh, and the Nagar family bards report that when Jam Rawal crossed over from Kachh about 450 years ago, his whole army crossed over dry foot from Tuna in Kachh to Balambha in Kathiawad, and fought a great battle near Manamora or Bhimkuta, with the Deda Chief Tomachi. Jam Rawal was victorious, and subsequently founded the principality of Navanagar.

5. At Manamora the sea water formerly reached as far as the mangrove swamp, but now it has advanced a mile further and arrived near to Phatel Dui. At Phatel Dui formerly large crops of grass used to be cut, but now salt is made there, and from the increase of the sea water a deep channel or creek has been formed, and Navanagar is anxious to open a new bunder here.

6. With regard to Jhinjura the deep channel that has been formed by the sea through the mangrove swamp formerly reached to a spot called the Suiwalunes, whereas now this channel has pushed its way during the last 20 years two miles further up, and is now close to Jhinjura village. Further, the road from Bahdra to Balambha, which was formerly a good one and in arable land (indeed formerly much arable land lay to the north of this road) is now actually impassable for ordinary carts, and the greater part of the land to the north of this road has been washed away by the encroachment of the sea and has become Raṇ.

7. There are in the Raṇ the remains of a village called Sat Shudo, on the route by which Jam Rawal travelled with his army when they invaded Káthiáwád. The Páliyas or memorial stones are said to be still visible; anyhow, living men depose to having seen them.

8. The Chief of Morví writes that the progress of the sea at

Wowania is equally marked: that he built in 1835 an embankment in the Ran for vessels to come up alongside of and cast anchor, and either load or unload their cargoes; when the embankment was built it was some few feet above high water mark, but now it is covered by the sea at high water, and a new embankment has been built very much higher than the former one. Nevertheless last year the sea overtopped even this one, and where previously water was but 6 feet deep it is now 12 feet. Formerly only a very small boat could cross over from Wowania bandar in Káthiáwad to Jhinjí bandar in Kachh, whereas large vessels of 100 khandis tonnage can go there now with ease. Colonel Keatinge and I met the Morví Chief at Wowania in 1863. The Morví Chief informs me that on the very spot where our tent was pitched—a spot where sea water had never then reached to—is now covered by sea water to the depth of 3 feet. Formerly there was a footpath from the Morví village of Barol to Jhinji in Kachh. This is now impassable from the encroachment of the sea, which now never recedes from thence as it formerly was wont to do.

9. The Chief of Mallia forwards two depositions showing the advance of the sea at Mallia. So great has been the advance of the sea, which is forming a deep channel in the Ran, that there is every prospect of Mallia soon becoming a seaport. The Chief has therefore made overtures to Kachh relative to opening a bandar. Translations of the depositions sent by this Chief are appended to this report.

10. It is all very well to call all this mass of facts crude, and to place no reliance on traditions like that of the crossing over of Jam Rawal, and to say that the fact of the encroachment of the sea does not fit in with certain geological theories, which in all probability in another 10 or 12 years will be superseded by others, but when we see that the action of the sea is precisely the same on the southern coast of Káthiáwad, and that in the same way as the islands of Bet, Chaka Nura, Ajar, Bahidar, &c., once formed part of the coast of Káthiáwad, and have now by the encroachment of the sea become islands, so on the southern coast, Perim, the Shiyal Islands, and many others also once formed part of the mainland, and have by the same depression of level of the land and action of the sea been converted into islands, one is led to conclude that the theory broached by the writer in the *Saturday Review* is not wholly devoid of a foundation in fact, however ill it may suit the ideas of amateur geologists, who without personal investigation dispose of every new theory according, not to facts, but to certain

preconceived ideas of their own. It is not likely that Navanagar should, to suit the theory of the writer in the *Saturday Review*, wish to open a new bandar at Manamora, a spot to which no vessel has been hitherto able to approach in the memory of man, nor that Mallia, with a similar object in anticipation of the construction of a port being one day feasible in their territory, should have recently entered into negotiations with Kachh. Nor is it likely that for a similar object the sea should have risen so many feet at Wowania and flooded acres of land, from which formerly it was far distant, or have pushed on deep channels far to the east of their former course.

11. It is not my province here to discuss the theory of the formation of Raṇs in general, but I think the idea that they are formed by the silt accumulated at the mouths of great rivers is manifestly untenable; for if this theory be correct, we might expect to see Rans at the mouths of the Narmadá, Taptí, Ganges, Káveri, Indus, and other large rivers. It is extremely probable that Egypt may have been formed from the silt of the Nile; but it must be remembered that none of the phenomena of the Raṇ occur on the coast of Egypt, and in no other part of the world that I am acquainted with do these phenomena occur; whereas large rivers abound, and the Banas, which is the largest river that empties itself into the Raṇ, is after all but a third or fourth class Indian river. At the same time I think it extremely possible that that portion of the Raṇ immediately adjacent to the mouth of the Banás should be rising in level; but there can be no doubt that the western portion of the Raṇ is either being depressed in level, or that the level of the sea is rising.

12. I have read the extremely interesting paper of Mr. Sowerby on the subject of the relation between the levels of land and sea on the Káthiáwaḍ coast. It is impossible to say what theory is the correct one until the beach-marks of the Trigonometrical Survey have been erected, and until more scientific investigations have been conducted by skilled geologists, aided by yearly surveys. If these were carried on yearly for a series of years in the Gulf of Khambát, the Káthiáwaḍ coast, the Gulf of Kachh, and the Ran, not only would one of the most interesting geological questions of the age be solved, but a considerable service would be rendered to vessels employed in navigating those seas.

I have the honor to be, &c.,

J. W. WATSON,

Political Assistant, Káthiáwaḍ, in charge W. D.

I make the following statement in the Court of Thakur. Morji of Mallia :—

My name is Lalo, my father's name is Mandan, by religion Musalman, caste Miyana, age about 50 years, occupation cultivator, resident of Mallia.

I sail in boats for these last 30 years, and say that the water of the sea, in our Ran, comes and dries at the same time as before. There are two *nalas* come from Hanjthal, the water of which encroaches into the land with such a force that it cuts the land a mile or two every year. The *nalas* which come touching the coast of Kachh is the most penetrating one, and the other, which comes in middle of the Ran towards our side, is not equal in force to that of the former, but longer and broader.

About 20 years ago the carts were used to pass near the Morvi villages to Jajsur and Baral, which they do not now, also on the road of Wothia the water which formerly got dried up remains now all covering the land.

The tide of the sea penetrates as far as half a koss at Nowa Tullao on the frontier of Morvi and Mallia. Samvat 1925, Asho Vad 9th, Halari.

I make the following statement in the Court of Thakur Morji of Mallia :—

My name is Ibraham, my father's name is Doso, religion Musalman, age 50 years, occupation service, resident of Morvi, village of Bagasra.

In Samvat 1898 we had established ourselves at Tonk to graze our cattle, and the road by which we used to cross the Ran was two miles from the expanse of water of the sea, but it has gradually begun to encroach towards the said road. In last year the water had come up to the old cart road leading from Mallia to Janji. The sea has made two narrow deep creeks—one on the Waghar coast, and the other on the Káthiáwad coast towards Mallia. These two creeks, especially the former, appear to have been advancing with great rapidity. The footpath in the Ran leading to Waghar Coast, which was at a far distance from the sea water, is now generally covered with it, and one of the creeks has advanced so far as to meet it. Several halting-places or bisamva on the Wandhia road were seen 10 years ago from a great

distance, but now these places are all surrounded by the water. Samvat 1925, Asho, Vad 9th, Halari.

(True copies)

W. W. ANDERSON, Political Agent.

After a conversation of some length, in which many of the members took part, the best thanks of the Society were voted to the Right Hon'ble the Governor in Council for the interesting communication, and the meeting adjourned.

SESSION 1869-70.

First Meeting, *December 16th*, 1869.

The ordinary Monthly Meeting of the Bombay Geographical Society was held in their rooms, Town Hall, on Thursday, the 16th December 1869, at 5 P.M.

Present.—Sorabji Jamsetji Jijibhai, Esq., *Senior Member*, in the chair; Captain J. E. C. Pryce, F.R.G.S.; J. Macfarlane, Esq.; W. Walton, Esq., C.E., F.R.G.S., F.A.S.L.; F. J. Candy, Esq., M.A.; Colonel J. T. Annesley; Dhirajram Dalpatram, Esq., G.G.M.C.; and J. Burgess, Esq., F.R.G.S., M.R.A.S., *Officiating Honorary Secretary.*

The Minutes of the last Meeting were read and confirmed.

Election.—Dastur Hoshang Jamasp, having requested admittance, was elected a member under Rule XXII. of the Society.

The Secretary remarked that the selection of a President in place of Lord Napier of Magdala could not be formally proceeded with in the Meeting of the Committee for want of a quorum. Captain Pryce, however, had agreed with him that the Hon'ble Mr. Justice Gibbs should be invited to accept the office. The sense of the Meeting was then taken, and the members present unanimously concurred and resolved that the proposal should be circulated to the Committee for approval.

Several donations to the Library were then announced, for which the best thanks of the Society were voted to the donors.

Several letters were read, among them the following:—

1. From the Superintendent, Royal Observatory, Greenwich; Registrar to the Bombay University; Librarian, Trinity College, Dublin; Registrar, Queen's College, Cork; Librarian, Glasgow College; Secretary to the Meteorological Committee of Bengal; Hydro-

grapher to the Lords Commissioners of the Admiralty; Secretary to the Madras Literary Society; Colonial Secretary, Tasmania; Superintendent, United States Naval Observatory; and Librarian, Literary and Philosophical Society of Manchester, acknowledging with thanks copies of Vol. 18 of the Society's Transactions.

2. From J. N. Lockyer, Esq., F.R.S., enclosing a prospectus and a copy of a new scientific journal, entitled, "Nature," and promising to send weekly numbers in exchange for early copies of the Transactions.

3. From the Secretary to Government, General Department, forwarding a copy of the letter addressed by the Government of Bengal to Dr. W. W. Hunter, requesting him to render the Society any assistance in his power in the preparation of the Index.

4. From the Secretary to Government, Political Department, forwarding a silver medal commemorative of the discovery of the source of the Nile by Captains Speke and Grant, as the person for whom it was intended died before it reached Zanzibar.

The Secretary then observed that at the last meeting the Society had accorded their sanction for the appropriation of Rs. 1,000 from the Premchand grant for making accessions to the Library, and completing the sets of the Journals, &c. of all the scientific institutions already in their possession, and the first instalment of the invoice was now laid on the table. He then submitted a long correspondence on the subject of the exchange of the Transactions, &c., made between this Society and other institutions. There being no further business before the Society, the meeting adjourned.

TRANSACTIONS

OF THE

BOMBAY GEOGRAPHICAL SOCIETY.

ART. I.—*Notes on Annesley Bay*, by EDWIN DAWES, Esq., late I. N.

Read before the Society, November 26th, 1868.

So much has lately been written and spoken on things Abyssinian, such a mass of information collected about the country and people of our late enemy Teodros and those of the would-be independent chieftains who surrounded his territories, and so many have treated on everything connected with the subject, that the rough notes of an unscientific and hardworked official lately stationed at Annesley Bay will scarcely, I fear, be of sufficient interest to gain even a casual hearing from those who must, now that the excitement of the Abyssinian Expedition is over, have already begun to find a place for the latest work on Abyssinia in a corner of the book-case, and dismissed the whole matter for topics of more recent interest.

Gúbut Doknú or Annesley Bay was visited in the year 1804-5 by Lord Valentia, one of the Hon'ble Company's cruisers having been placed at his disposal; and some sketches and charts of Annesley Bay, the Bay of Massua and Dissi or Valentia Island, by Lieutenants Charles Court and W. Maxfield, of that vessel, still remain to show that the visit was more than a cursory one. The latest chart of the bay was made by officers of the Indian Navy during the general survey of the Red Sea; but so little could it have been divined that it would ever become the basis of extensive warlike operations, or that a fleet of nearly two hundred vessels, many of them propelled by a power then hardly in its infancy, would float upon its clear waters for the punishment of a potentate whose kingdom was at best known only

partially to a few traders and travellers, that it was not apparently thought necessary to give more than a general outline of the bay and its surroundings.

The main features of the bay are decidedly volcanic, the right, or Hurtow, side near the sea being chiefly composed of decayed coral mixed with shells, and partly covered with a thin crust of poor soil. The land rising to a blunt cone at the entrance of the bay forms the peak of Hurtow. The rocks which compose the actual main land, and of which the coral is merely an incrustation, are mostly sandstone, in some instances very hard and black, in others of a lighter colour, easily broken into slabs or flakes; and especially towards the entrance of the bay and about the island of Dissi mixed with feldspar, mica, and other shining particles, which give it at first sight almost the appearance of granite. The decayed coral is sometimes so light and porous as to float on the surface of the water.

The ground towards the head of the bay is broken by deep ravines, the sides of which are in many places perpendicular, in others more inclined, from the masses of stone and boulders which have from time to time become detached. Everywhere the strata are distorted and irregular, giving the idea of some great natural convulsion which perhaps, according to the theory of one who has travelled over considerable portions of the country between Tajourra and Massua, may have connected all that part of the coast (which from the inland salt lakes and other marine indications there is reason to suppose was either a series of islands or a peninsula) with the main land: from the formation of the coast line the former idea would appear to be the most probable, though after the lapse of many centuries leading features become partially obliterated, and the condition of a country, even so sterile a one as the littoral of Abyssinia, becomes so altered that it would most likely require very scientific investigation to decide the point with any degree of accuracy.

The bottom of the bay would appear to be composed almost entirely of mud, in some parts mixed with shells, in others with washings from the coral rocks; through this the rocks occasionally crop, but these, so far as were discovered, are only dangerous near Dissí Island, at the entrance of the bay, and along the eastern shore, which is lined with coral reefs. The western shore is a low plain of alluvial deposit, varying in breadth from about thirteen miles to

one mile and a half, backed by the range of hills from which the Abyssinian plateau commences. The shore line consists of a series of spits forming shallow bays, some of which are muddy and bordered with mangrove trees and bushes, and covered for some distance inland at spring tides; others, where the soil is a little raised above high water level, and where it is more sandy, have deeper water close to the beach, and are more convenient for landing. There is a singular absence of stone on the left shore of the bay, its general character being that of hard sandy mud encrusted with salt, traversed in many places by the marks of floods and rivulets, abounding in driftwood, and for several hundred yards from the sea so little above its level as to be always more or less damp; further inland its nature becomes more that of dust than sand, and so easily raised by the wind as to be very trying to travellers. Through this stony hillocks break occasionally till at the foot of the hills the ground is covered with rocks and boulders which appear to have been washed down by heavy floods; these continue up the mountain passes; and doubtless the theme preached by these particular stones was a hard lesson in patience to the resolute engineers who smoothed the path of our army. Through the plain cut several watercourses which lead the watershed of the highlands to the sea; these are generally dry, but during the winter months become suddenly flooded with impetuous torrents which disappear almost as suddenly as they arise.

The extreme length of the bay is about twenty-seven miles, its breadth at the entrance thirteen miles, narrowing about half-way to five miles, and then spreading out in a deep curve which forms the head of the bay. The whole aspect of its shore is that of sterile repose, and sameness, the only relief to the eye from the glare of its arid beach being the small patches of green mangroves, which serve to make its barrenness more apparent; but looking past this to the westward the landscape is not unpleasing, especially in the early morning, when the bold ranges of hills, whose sombre hues, relieved by a few white dew clouds and backed by the blue mountain tops of the Abyssinian ranges, display a variety of lights and shades which would charm any admirer of mountain scenery.

The shores of the bay are very thinly inhabited; on the right side are a few small villages of Danakil, and on the left a few nomad Shohos; the only village continually inhabited being that of Zoulla, the population of which may perhaps average about five hundred

souls; it is situated about three and a half miles from the sea coast; its huts are built of brushwood and such rafters and poles as can be collected from the adjacent stunted jungle; a few of them are of an oval shape, but the greater number with sloping roofs thatched with small branches and a kind of dwarf bamboo which is found in the watercourses. There is a small Egyptian garrison here, and at a place called Arrafali, at the head of the bay. The other villages occasionally met with were merely temporary huts built of branches of juniper or mimosa, interlaced with smaller ones as a protection from the sun, and sometimes covered either with coarse grass or dried skins. The villages in the passes and ravines are built of loose stones, and, advantage being taken of the natural formation, such as a ledge of rock, a small ravine, or some other cover, are so constructed of the surrounding stone as to be not easily discovered.

The inhabitants, in common with all the other littoral tribes profess the religion of Islâm, but so degraded are they and of such a low type of humanity, that I doubt their knowing much more of it than its name. They are treacherous and cowardly, great thieves and incorrigible liars; in fact, I suppose it would be difficult to find worse specimens of mankind. Their bodies are generally thin almost to attenuation, but their features have not at all the negro cast; the aquiline nose, high forehead, and thin lips being often seen; the forehead, however, is generally very narrow, and the eyes have either a stolid, foolish stare, or, when they are at all excited, the quick, furtive glance, almost that of a wild animal, only particularly noticed among barbarous races. The women generally have flatter features and are more ill-looking than the men, though commonly of stouter build, which may be attributed to their being hewers of wood, drawers of water, and beasts of burden in general to the family. The dress of the men is usually a cotton cloth thrown loosely over the body, and confined at the waist with a thong of leather; always very dirty and generally very ragged. The women wear a skirt of leather fitting very tightly to the body, reaching to the knees, and frequently ornamented with white cowrie shells, a few beads on the arm or round the neck, and a thick coating of grease generally complete their costume. In many cases the head is entirely shaved, in others about a hand's breadth is cut nearly close on the crown, leaving a tuft of wool over the forehead and at the back of the head, which, though perhaps not more peculiar than the style of ladies' head-gear adopted in more civilized countries,

certainly has a very singular and grotesque effect. The men seem to devote a good deal of time to dressing their hair, which generally sparkles with grease; the back and sides of the head are clustered with thick woolly curls reaching sometimes to the shoulders, and of which they are very proud; the crown of the head being covered with a dense mop, through which a long curved wooden skewer is stuck in a rakish sort of way, its principal use being to tease out the mop aforesaid and otherwise titillate their scalps.

The coast tribes are a decidedly pastoral people, though some rude attempts at cultivation were seen. The grain generally appeared to have been sown on circular clearings, which, being surrounded by brushwood and branches of trees, seemed to have been left to its fate till the primitive husbandman might wander back with his flocks to gather whatever resulted from his careless tillage. Their flocks and herds comprise cows, goats, camels, and a very inferior description of sheep, many of which, of the fat-tailed species, have long sandy-coloured hair; the cows are small but well made, and frequently without the hump common to the Indian breed; the camels would not strike one as being very excellent, and appear to be valued as much for their milk as their carrying powers; indeed, the household gods of a Shoho family are not likely to prove very burdensome, as they are generally all contained in three or four skin bags.

Milk seems to be the favourite diet, and is generally taken sour; this, eked out with a little ghee, dourra (jowari), the fine seeds of grass which are winnowed and collected by the women and children and a kind of ground nut which they find by digging a few inches below the soil, with sometimes a little flesh or a few dates, appears to satisfy their simple wants.

The Shohos exhibit a good deal of care and taste in the manufacture of their water jars, bowls, &c.; these (in common with the different tribes of Danakil and Somal) they weave from the fibres of a species of aloe which is found on the rocky hill sides; the fibres are very tough and strong, and at the same time light, and they are so closely and finely woven as to be perfectly watertight and dry on the exterior; the jars especially are of a very pretty and classical shape, and the larger ones are frequently ornamented with small white cowries, which are interwoven in various patterns with the outer fibres.

The arms generally used are the shield, which is circular and

about two feet in diameter, made of several thicknesses of bulls' hide, and ornamented with some rude design indented on the outer surface; the spear, with its long lance-shaped head, is sometimes fastened on a staff about eight feet long, with coils of copper or brass wire, this is more common among the Danakil, and may be more for ornament than use, as many merely have the staff driven into the hollow in the lower part of the spear-head; the staff always has a strip of iron twisted round its lower end; its use is twofold—as a counterbalance to the spear-head when thrown, and to prevent it from being worn away when used in walking; a long curved sword, with a wooden handle and no guard, is often worn on the right side, the leathern scabbard of which fastens round the waist with a belt and rude buckle. The iron from which these arms are wrought is always of a very inferior description. The club is the commonest weapon of all; it is made of the root of babul or other hard wood, and is of many patterns and designs.

In walking, the Shohos, especially those of any importance, almost invariably carry a long, straight, slender wand; it is cut so as to leave a fork at the upper end, and is of a convenient length to rest the arms on when standing up; the bark is carefully peeled off, and the wood, which is covered with projecting knobs, neatly smoothed.

At the commencement of the Abyssinian campaign most of the Shohos had but a very faint idea of the value of money, and a couple of handfulls of rice would often purchase more than any coin; but long before its close (though the price of an article, and one an-eighth of its value, would be named at a *rial*, so vague were their notions of monetary transactions) they were eager enough to become possessors of British silver, their interest in which has, I fear, by this time been considerably diminished by Egyptian officials.

It would be difficult to note many peculiar customs among a people of such primitive habits unless one actually lived in their midst; but their way of holding a council was worthy of notice. Each man having squatted on his hams close to his neighbour, the whole forming a large circle, the orator of the party proceeds to work himself up to a proper pitch of excitement by jumping about in the centre and beating the ground with the branch of a tree, and suddenly breaks forth in a volley of guttural; his harangue is frequently interrupted by any one who has something to say—now by an elder who may be offering some suggestion, now by a precocious youngster who,

may be, wishes to air his juvenile eloquence; and so it goes on till the meeting appears to break up by every one jumping to his legs simultaneously and joining in the general clamour. Several of these meetings were held by the Shoho labourers employed at the commencement of the campaign with reference to strikes for higher wages, which they occasionally indulged in, and which, as such strikes generally do, ended in the importation of foreign labour, to the discomfiture of the Shohos. Another curious custom is that of holding up a cloth or other screen before a person in the act of drinking; although it would not appear to be a general custom, we noticed it at a cluster of huts near the head of the bay, where, having stopped to ask for some water, the people were civil enough to spread skins in a tree overhead as a shade, and others on the ground for us to recline on, and having brought bowls of sour milk and water, always went through the face-screening ceremony with us and among themselves. I had heard of this as being the custom among some of the Dunakil tribes, but had never seen it put in practice before.

The Shoho graves (placed according to the usual Mahomedan custom) are also worthy of remark, from the care which is taken to protect them from the attacks of wild animals by piling large stones over them; these are frequently built up in an oblong form, and ornamented with black and white stones arranged so as to form a rude device; sometimes one or more flat stones would be erected at the head or foot, these were said to mark the grave of a warrior, showing the number of men who had fallen by his hand; it is also said that the dead are buried in a sitting posture, the entrance of the grave being very narrow, but formed at the bottom into a cavity against the side of which the body is rested.

The temperature of Annesley Bay is generally the oppressive damp heat common to that part of the Red Sea, varied occasionally in the summer months by hot winds, which usually succumb to the sea breeze about noon. With a dry atmosphere, the thermometer sometimes rose to 108deg. and 110deg. in the shade of a well-ventilated room; but with a damp atmosphere and the thermometer ranging about 95deg. the heat was often found to be much more distressing. The coolest weather experienced was from the end of November to the end of February, when the days were frequently cloudy, with occasional showers. On the 19th March, the bay was visited by a

revolving storm; a heavy bank of clouds collecting in the direction of its approach had given warning for some days beforehand. The strength of the storm lasted about forty minutes, and some of the squalls were very severe, accompanied by heavy rain; the wind veered in a contrary direction to that generally taken by revolving storms in northern latitudes, and the storm's path seemed to be from the S. towards the N. Some damage was done to the shipping, many vessels having dragged their anchors and fallen foul of those near them, and several native craft were thrown against the bunders or on the beach, and broken by the violence of the sea; in camp, numbers of tents were blown down, much to the discomfort of their occupants, whose belongings were wetted and destroyed by the driving rain.

There was little time to observe the fauna of Annesley Bay, but the animals commonly seen were two varieties of hyenas, jackals, a species of civet cat, hedgehogs, a kind of jerboa, a wild pig called the wart hog, hares, porcupines, two or three different kinds of monkeys, conies, a small and very graceful antelope called the Beni-Israel, and the antelope common to most parts of the African coast —an animal standing about thirty six inches high, and weighing about a hundred pounds. Elephants occasionally visited the shores of the bay, but no large tuskers were seen; the skin was of a very much lighter colour than that of the Indian elephant, and the ears twice as large; they are very active, and climb about the hills in places looking almost impossible for so ponderous an animal. The pugs of what were supposed to be lions were seen several times, but I do not remember a reliable instance of the animals themselves being met with. Ostriches were seen near the head of the bay; guinea fowl and a large kind of partridge, with a bare orange-coloured neck, which is also found in numbers in Turkish Arabia, and called by the Arabs "Dejajel-burr," were very common; also a kind of bustard florican, which went in pairs; the larger and smaller species of bustard were frequently seen, several kinds of doves, a saddle-back crow with white plumage on the shoulders and breast; eagles, and those birds of prey usually met with in India, were also common; severals kinds of flycatchers and larks were seen, and a small linnet which lived among the reeds near a hot spring; but small birds were not found in great numbers near the sea; flights of ducks, geese, and teal passed over the bay in November

and December, taking a southerly direction, and some of the latter, apparently exhausted, settled on the water near the landing place. Pelicans, storks, cranes, gulls, curlews, snippets, and other small waders, and several varieties of the tern, frequent the beach. Snakes, scorpions, and centipedes were not uncommon; a few locusts visited the bay; but beetles and butterflies were rare, and of the latter I only remember seeing a few azure blues, common browns, and a kind of fritillary. Of the several kinds of sea-fish, the commonest were varieties of the ray, rock-cod, grey mullet, and sea perch; sword-fish, and hammer-headed, and the common variety of shark were often seen. Of the crustaceæ, prawns, craw-fish, and eight distinct species of crab were found, the smallest of which, a very diminutive red kind, with one claw nearly as large as the rest of its body, found a dwelling among the crevices and branches of the live coral. One or two starfish, and a large variety of the echinus having long black spines, and commonly called the "sea egg," lived among the rocks of the east side of the bay, where oysters also were plentiful; but very few varieties of shells were collected. The common large white jelly fish, the blue variety, and the sea-nettle were often seen, but none of those beautifully-coloured anemonies or pleasing varieties of sea-weed which adorn the rocks and shallows of our own coast were found at Annesley Bay.

It may be imagined from the description of the soil that the vegetation is very scant. Thickets of juniper afford cover and shade to wild animals; a kind of babul, camel-thorn, mimosa, and a species of acacia are scattered about, especially near the base of the hills; and frankincense trees are met with occasionally. The shore is in some places lined with mangroves, which attain almost the dimensions of trees, and a large cactus grows in clumps at the southern part of the bay, among the roots of which the wart hogs frequently burrow. A low heathery kind of plant covers the more sandy soil in large patches, and during the showery months a good part of the plain is thinly covered with grass which grows to a rank luxuriousness under the shady bushes. Wild flowers are seldom seen; large clumps of dry-looking rushes grow about the hot spring; a kind of vine climbs thickly over some of the bushes, and when yellow and dead still clings to their branches, giving them from a short distance the appearance of thatched huts; and the colocinth, with its gourd-like fruit, creeps over the nullahs and sandy patches. Doubtless a botanist would find many ob-

jects of interest, but to an ordinary observer the flora of Annesley Bay were not particularly attractive.

The paucity of water in the neighbourhood of Zoulla, which caused a large item in the expenditure of the Abyssinian Expedition, is so well known that any comment on the subject is almost needless. The best water on the eastern side of the bay is found in a ravine bearing at a rough guess about S. 50 E. from the landing place on the opposite shore. The rain water lodges in deep crevices in the sides of the ravine, which are nearly enclosed by large boulders of rock, forming natural reservoirs, from which there can only be a small amount of evaporation; from these crevices the natives, by creeping down with a rope, procure the small amount of water which they require. Further towards the entrance of the bay are some deep wells cut in the coral rock, but the water is scarce and very brackish. The only water found on the west side of the bay nearer than Koomaylo was in some mud pits in the bed of a watercourse near the sea, at a place called Mulkutto. About three miles from Arrafali are the hot springs of Azfat, which, rising about four hundred yards from the beach, run down through thick jungle to the sea. The springs bubble up in a small irregularly-shaped basin. The water is nowhere over three feet deep, and the rocky bottom of the pool is covered with a soft muddy ooze; the water is inhabited by numbers of small fish; it is saline, but not so much so as to prevent its being drunk by various animals. The temperature is about 190deg. and the natives have great faith in its waters as a cure for rheumatic pains, and I believe it to be really beneficial in such cases.

Crossing a watercourse in a northerly direction, and about three-quarters of a mile from the village of Zoulla, you reach the extensive mounds of what, till quite lately, have been supposed to be the ruins of the ancient Greek merchant settlement of Adoulis, from the name of which that of the modern village is supposed to be a corruption. Since the researches of Captain Goodfellow, R.E., and a company of Madras Sappers, the origin of these ruins would appear to be uncertain; but it is now thought that a Christian settlement must have been built on the site and with some of the materials of the more ancient Greek ruins. The interior of what was considered to be a church, was found, with portions of the two rows of pillars, and some of the marble flooring, the marble white and sometimes slightly veined with red; besides these, part of the shaft of a small marble column

and a slab of stone, on which was cut a sort of Maltese cross in bas-relief, were also found, but no inscription or writing of any kind. One or two houses were excavated, but only large quantities of coarse pottery, some highly-glazed pieces, and a few lumps of metal which had evidently been in a state of fusion, were discovered. Want of time brought to a conclusion these researches, which, conducted under more favourable circumstances, might have proved much more interesting.

In conclusion, I trust that these notes, though very rough and imperfect, will give some idea of the inhospitable coast on which part of the British forces were destined to spend the greater part of a year, but so diffident am I of being able to convey a description of our position by the few random observations which were all I could find time for amidst a press of office work, that I hope any inaccuracies will be excused in a paper for which I must beg your most kindly criticisms.

ART. II.—*Notes on the Hot Springs of Lasúndará, in the Kaira Zilla* by JAVERILAL UMIASHANKAR YAJNIK, Esq.

Read before the Society, March 18th, 1869.

LASUNDARA* is a village in the Kaparvanj district of the Kaira Zilla, (Gujarat). It is about 24 miles from Neriad (a station on the B. B. and C. I. Railway), in a north-easterly direction, and about 11 miles from Dakor in the northern direction. Dakor is a noted Hindu shrine, and pilgrims going to this place often make it a point to visit Lasúndará to bathe their bodies in the '*Ráma Kunds*,' as the hot springs are called. The village of Lasúndará is situated in a somewhat low lying ground, the surface being mostly covered with a salt crust, called '*Usa*.' About the site of these springs, heaps of salt used to be prepared in the time of the previous government, and also under the present government, until the operations were given up on account of the government salt monopoly. The wells in the village partake more or less of this saline character of the surface of the soil. There is, in fact, only one sweet-water well, situated at the distance of a mile from the village, which supplies the people with water fit for drinking. There is, however, a spacious pond or *talao* at the southern extremity of the village, which compensates them for the scarcity of sweet-water wells. It is partly availed of by the people for drinking and domestic purposes, but largely by the cattle. The water of this pond lasts generally during the whole of the year.

* The term, Lasúndará, is a corruption of the original Sanskrit compound लवणवसुन्धरा, *Lavan vasundhará*, signifying a place holding a deposit of salt. Originally the village was known under the name of 'Lúnpur' or 'Salt village.' In old documents as far back as 200 years, the village is styled "Lun-Sundara,' from which the modern name, Lasúndará, is evidently derived. There is another group of similar springs in this zilla. It lies between Thasra and Godra, at the distance of about 6 miles eastward from the former. It is known as 'Tuá Kankunpur' springs. In the zilla of Surat also there are Hot Springs at Unai, where an annual fair is held. And not far distant from Bombay, we have at VajráBái a similar group of hot springs, with their customary annual fair, to which many Hindus from Bombay resort under a notion of sanctifying their bodies by bathing in the water of the spring.

Early in the morning of the 1st October last, I proceeded, in company with two friends, to see the hot springs which lie at the southern extremity of the village. The place where these springs are located is called "*Rámakshetra*," from tradition having assigned it as a halting-place to the hero of the Rámáyana on his march through the district. Here Ráma is said to have performed the ceremony of *Srádh*, on the anniversary day of his father, Dasaratha. Sitá, his wife, being required to join the ceremony, wanted hot water to bathe in. To get this, Ráma is said to have pierced a number of arrows into the ground. On taking them out water gushed forth, and so was Sitá bathed. The Bráhmans of the place, who are found about the springs from day-light to sun-set, repeat this story in the presence of almost every visitor who comes to bathe here, and have thus invested the place with a sanctity, joining religion to a natural phenomenon, which enables them, at least, to earn their daily *Dakshinas* from the visitors. There is a temple of Somnáth by the side of these springs, which appears to have been lately constructed.

The surface of the springs is about 3 feet below the general level of the surrounding ground. Such of them as are close to each other are grouped into compartments, built with *chunam* walls up to the level of the ground. The visitor has to reach the springs by descending the steps. These compartments are three in number, of which two lie close to each other, and the third is situated at a distance of about 30 feet from the others. The first compartment, which is almost a square, contains a group of seven springs. Its outside length is 23 feet, and inside length, 17 feet 8 inches. It is 3 feet 10 inches below the level of the ground. Of the seven springs in this compartment, the central one is the largest and the hottest. It is 7 feet 10 inches deep. I had a thermometer by me which at the time (about 8 o'clock in the morning) showed 88 deg. fahr. as the temperature of the surrounding air. On dipping it into the central spring, about half a foot below the surface of the water, I found the thermometer rose at once to 117 deg. where it remained for about ten minutes. I then sent it down, having tied it with a string to the bottom of the spring, and allowed it to rest there for about ten minutes, after which it was taken out, when the instrument showed 122 deg., thus indicating a difference of 5 deg. between the temperature of the top and that of the bottom. The thermometer was then dipped into the next spring, to ascertain its top and bottom temperatures, which were found to be 113 deg. and 114 deg. respectively.

The process was thus repeated in the case of each spring, and the following are the indications of the temperature :—

COMPARTMENT A.

			Degrees Fahr. at the top.	at bottom.
Temperature of central spring,	No.	I. ...	117°	122°
,, spring	,,	II. ...	113	114
,, ,,	,,	III. ...	102	100
,, ,,	,,	IV. ...	108	112
,, ,,	,,	V. ...	106	108
,, ,,	,,	VI. ...	114	119
,, ,,	,,	VII. ...	112	111

It will be seen from the above that in the case of springs Nos. I., IV., V., and VI. the temperatures at the bottom are greater than at the top; that in No. II. the top and bottom temperatures are almost equal; and that in Nos. III., and VII., the temperature at the bottom is less than that at the top. All these seven springs are situated at a distance of about 1 to 2 feet from each other and hardly a foot from the central spring.

Each of the springs is in the form of a square, having its banks or edges at the top built of *chunam*, to prevent its water flowing into the next spring. Some of these edges have given way, especially those of spring No. VI. in this compartment. This spring was at one time considered the hottest in the group, hotter than even the central spring. But since the time its banks have given way, its water, getting mixed with the colder water of the nearest springs, shows a much lower temperature.

The water in each of these springs is constantly seen to rise up and overflow its banks. In the day time, however, this is much less observed, as the inhabitants of the village, as well as pilgrims from neighbouring villages, use the springs more or less for bathing purposes. At night the phenomenon is seen to great advantage. But bubbles are often seen to float upon the surface and burst, both during day and night. People who come here to perform their ablutions do not plunge their bodies into the springs. They sit by the bank of each spring in turn, and dipping their *lotas* into the water, pour it over their persons. These *lotas*, which are made either of brass or copper, after they are once or twice dipped into water, soon lose their

brightness, and become dark grey, owing to the saline and vegetable ingredients of the water acting chemically upon the metal of the *lotas*.

At the bottom of these springs an accumulation of mud takes place within a few months, which frequently stops the free percolation of water through the beds of the earth. In the central spring, there is said to be a hole of about two inches in diameter on the eastern side, from which water springs forth with great force and rapidity.

Compartment No. I. is well *chunamed* and cleanly kept. It was built in the Samvat year 1846 (corresponding with the Christian year 1790) by Válá Mókam, a Barot or Bard of Bijapur, in the territory of H. H. the Gaikwád.

Compartment No. II. built by the Móhód Brahmans of Kaparvanj, but lately repaired by Mr. Jasbhái Sárábhai, of Petlad, contains only one spring. It lies close by the side of compartment No. I. It is not quite square, one side, measured from within,—from east to west—being 11 feet 2 inches, and the other, from north to south, 12 feet 3 inches. The spring in this compartment is 8½ feet deep, and the temperature of its water is 101 deg. both at the top and at the bottom. It is not so largely availed of for bathing purposes, as the springs in the first compartment.

We now come to the third compartment, which is situated at the distance of about 30 feet from the first in a southern direction from the village. It is 26 feet by 30. There are nine springs in this compartment, which was built and plastered in the Samvat year 1895 (corresponding with the Christian year 1838) by one Shivashankar, a Vadnagara Nágar Brahman, native of Petlad, when he was Mazmudar of Kaparvanj. The central spring in this compartment is larger in dimensions than even the spring of the first compartment. The temperatures of the several springs forming this compartment both at the top and at the bottom are given below, the numbers 1, 2, 3, &c. denoting the particular spring in the compartment.*

	Degrees Fahr. at the top.	at bottom.
* Temperature of Spring No. 1 ...	90°	92°
" " " " 2 ...	91	90
" " " " 3 ...	90	90
" " " " 4 ...	89	89
" " " " 5 ...	89	89
" " " " 6 ...	108	114
" " " " 7 ...	94	94
" " " " 8 ...	89	88
" " " " 9 ...	87	87

It will be seen that all the springs in this compartment, except spring No 6, are much colder than those in the first.

In connection with these springs, it may be remarked that their temperature varies at different seasons of the year. In winter, for instance, it stands far higher than in summer, or the rainy season. In the hottest months of the summer, the temperature of even the warmest spring is bearable, that is to say, water from it can be poured upon human body without its feeling a keen sensation. It also happens that previously to the setting in of the rains, the temperature of the springs becomes intensified, and this fact affords the inhabitants of the village a pretty sure prognostic of rain. This phenomenon has been observed to take place so regularly that the villagers are able to predict, with some certainty, a few days before, when there will be rain. During the recent flood in Gujarát, this was distinctly observed by the people of Lasúndará. Two days before the date of the heavy flood, the water in most of the springs began to grow unusually hot, which led them to expect a heavy fall of rain. And a heavy fall did take place. After rain, the temperature subsides to its ordinary level.

The inhabitants of Lasúndará use these springs as their daily baths at all seasons of the year, partly from a feeling of sanctity, and partly from a sense of economy, the hot water causing them a saving of fuel to which they would otherwise have recourse for the purpose of getting hot baths.

The hottest of the springs emit generally a very disagreeable odour, sulphur being found to be more or less a chief ingredient of the water. The spring water is often used by natives of Gujarat as a restorative in the diseases of the skin, especially leprosy, but how far the remedy has succeeded I am not in a position to say, though many persons are said to have got rid of their leprosy by bathing in these springs. It is said that by constant bathing in these waters, the whiteness of the skin assumes a ruddy appearance, which by lapse of time turns into the natural color of the skin.

The village of Lasundará contains about 500 to 600 houses, built mostly of mud, and roofed with tiles. The inhabitants, which number about 2,500 souls, are Brahmans, Banyans, Kunbis, and Kolis, and are more or less cultivators. The land here does not yield so plentiful a crop of produce as in other parts of the district, and hence the government assessment is comparatively low. There is a Government Gúja-

ráti school in the village, attended by about fifty boys, mostly Bráhmaṇs and Kúnbis. A Játrá or fair is held at the springs twice a year, the one on *Janma Ashtami* in the month of Shrawan (August), and the other on *Ambla Igaras*, in the month of Kártik (November). On these occasions, Kolis and Bhills, from the surrounding villages, flock in large numbers to purify themselves by bathing in the *Ráma Kunds*.

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